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COLLEGE OF PRECEPTORS
BLOOMSBURY SQUARE

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INDEX.

ARTICLES, &c.

Académie Française, 228.
Adams, Prof., on the Dullness of Schoolmasters, 448.
Appointments and Vacancies, 22, 58, 118, 159, 196, 235, 272, 308, 364, 405, 446, 478.
Assistant Masters' Conditions of Service, 477.
Assistant Masters' Salaries, 315.
Barlet, S., Scènes et Récits, 165.
Bernaardt, A. H., on L'Académie Française, 228.
Binet's Method for Measuring Intelligence, 453.
Blair, R., on the Newer Education, 275.
Blair, R., on the relations of Science to Industry and Commerce, 407.
Boissot, M., on Creation or Evolution, 452.
Book-keeping and how to Teach it, 485.
Boy Labour and Unemployment, 230.
British Association at Sheffield, 305, 360, 398, 407.
British Medical Association and Athleticism, 370.
Choses et Etres: Creation or Evolution, 452.

COLLEGE OF PRECEPTORS:—

Evening Meetings: see below.
General Meeetings, 61, 303.
Meetings of Council, 26, 65, 114, 150, 192, 228, 275, 305, 402, 437, 489.
Pass Lists:—
Teachers' Diploma Examination.—Christmas, 1909, 121, 193; Midsummer, 1910, 439.
Certificate Examination.—Christmas, 1909, 83, 123, 151; Midsummer, 1910, 327, 401.
Professional Preliminary Examination.—March, 1910, 151; September, 1910, 402.
Lower Forms Examination.—Christmas, 1909, 92, 125, 151; Midsummer, 1910, 335, 401.
Certificate of Ability to Teach, 151, 228.
College-bred Women, 25.
Colvin, S. S., on Humour in Education, 312.
Conférences Françaises, 16, 165, 191, 228, 452.

CORRESPONDENCE:—

Appointments in Secondary Schools: N. Y. M., 268.
German Teaching, Decline of: P. Q., 70.
Schools Mutual Aid Society: M. C. Leish, 193.
Teachers, The Supply of: M. Jackman, 192.

Cross-fertilization in Schools, 110.
Culverwell, Prof., on The Beginnings of Mathematics, 17.
Current Events, 21, 56, 117, 157, 195, 233, 271, 307, 363, 405, 445, 477.
Demonstration Schools, 161.
Dill, Sir S., on Greek in Modern Life, 126.
Dullness of Schoolmasters, 448, 480.
Economics in the Curriculum, 365.
Educational Conferences, 65.
Educational Experiment, 191.
Educational Ladder, 14, 71, 110, 149, 190, 227, 265, 310, 359, 398, 436, 477.
Endowed Schools in National Education, 198.
Endowments and Benefactions, 22, 57, 118, 158, 196, 234, 272, 308, 363, 405, 446, 478.
Esperanto: its Position and Progress, 152.
Eve, Henry Weston, The late, 353.
Evening Education in London, 410.

EVENING MEETINGS at the College of Preceptors, Papers read at:—

Book-keeping, and how to Teach it: J. B. Harrold, 485.
Cross-fertilization in Schools: J. L. Paton, 110.
Demonstration Schools: Prof. J. J. Findlay, 161.
Dullness of Schoolmasters: Prof. J. Adams, 448.
School Recognition in England: J. S. Thornton, 236.

Findlay, Prof., on Demonstration Schools, 161.
Findlay, Prof., on the Dullness of Schoolmasters, 480.
Fixtures, 21, 56, 117, 157, 195, 233, 271, 307, 363, 405, 445, 477.
Grammatical Terminology, 70.
Greek in Modern Life, 126.
Harrold, J. B., on the Teaching of Book-keeping, 485.
Head Masters' Conference, 25.
Higher Education, Royal Commission, 411.
Higher Education of Workers, 367.
Honours, 21, 57, 117, 158, 195, 233, 271, 307, 363, 405, 445, 478.
Humour, Educational Value of, 312.
Japanese Education, British Influence on, 370.
Johnston, Miss K. L., on Binet's Method, 453.
Knowledge and Success, 368.
Lawrence, Miss E. A., on Esperanto, 152.

LEADING ARTICLES:—

Education Estimates, 1910–11, 295.
Greek Protectionist, 103.
Inspection, 431.
Is it Peace? 259.
King Edward, 219.
MacColl, Hugh, 53.
Moral Education Congress, 471.
Municipalization, 51.
Part of the Learner, 145.
School and Employment, 393.
Schoolmasters and Politics, 9.
Secondary Schools Association, 183.
Warne, The late Mary E., 185.

Literary Items, 24, 58, 119, 160, 197, 235, 274, 309, 365, 406, 448, 480.
London Mathematical Society, 38, 81, 135, 175, 250, 286, 502.
London Training College Students, 305.
Macdonald Movement in Canada, 226.
Mackinder, H. J., on the Regional Method, 153.
Manning et la Démocratie, 16.
Margueré, l'Abbé, on Manning, 16.

MATHEMATICAL QUESTIONS AND SOLUTIONS:—Adams, C. W., 283; Aiyar, S. N., 380; Aiyar, V. Ramaswami, 284; Andrade, S., 249; Archibald, R. C., 461; Arnold, I., 76, 500; Arunachalan, M. V., 283; Ashdown, W. J., 420, 421; Barniville, J. J., 381, 462; Bateman, H., 209, 380; Bates, G. N., 283, 380; Beard, W. F., 77, 132, 134, 174, 208, 248, 321, 419, 420, 421, 461, 501; Biddle, D., 36, 76, 173, 283, 284, 420, 421, 500; Blaikie, J., 34, 209, 247, 380, 461, 499; Boag, Harold, 76; Border, G. W., 420; Bowesman, E. B., 132, 284, 499; Brown, F. G. W., 77, 78, 132, 210, 247, 284, 381; Capon, R. S., 247, 322, 499; Chartres, R., 36, 134; Chaundy, T. W., 133, 283, 380, 500; "Chemist," 499; Chepmell, Major C. H., 36, 283; Christie, R. W. D., 247; Cochez, Prof., 36; Cottrell, F., 247; Csada, Prof. T. L., 284; Cunningham, Lt.-Col., 36, 37, 77, 133, 174, 209, 248, 249, 284, 322, 381, 460, 501; Dakin, A., 499; Dallas, R. J., 34; Daniell, V., 247, 322; Das, Pulinbihari, 283; Davis, R. F., 76, 249, 460, 462, 499, 501; De, Keshub Dass, 461; De, Krishna Prasad, 284, 380, 420, 501; Dick, Hon. G. R., 133; Durell, Clement V., 37, 174; Edwardes, D., 173, 210, 322, 461, 500; Escott, E. B., 36, 249, 321, 381, 462; Gallatly, W., 173, 284, 321, 380, 462; Ganguli, S., 461; Gillson, A., 77, 208, 249; Gopalam, S., 35; Greenstreet, W. J., 283, 420; Hernández, Prof. E., 209, 381; Heydon, J. K., 248; Hudson, Prof., 77; Iata, R., 77, 174, 208; "Inquirer," 35; Jeffares, J., 208; J. H. M., 248, 500; Julian, Julian, 420; Knowles, R., 77; MacColl, H., 35; McVicker, C. E., 380; Marks, Constance I., 321, 421, 461; Mayor, F., 381; Morley, Prof., 134, 285, 379, 461; Morrison, Edith J., 381, 501; Muir, T., 380; Mukhopâdhyây, Prof., 500; Nanson, Prof., 34, 37, 77, 78, 134, 173, 248, 284, 380, 421, 461, 462, 501;

MATHEMATICAL QUESTIONS AND SOLUTIONS (*continued*):—

Naraniengar, M. T., 77, 172, 174, 283, 284, 320, 380, 421, 462, 500; Narayana, M. S., 35; Neal, F. J., 76; Nesbitt, A. M., 35, 132, 133, 174, 208, 209, 247, 248, 249, 321, 381, 420, 499; Neuberg, Prof., 208, 209, 320, 321, 421; Norrie, R., 77, 133; Orchard, Prof. L., 248; Ramanujan, S., 208; Rees, W. H., 77; Riddell, H., 421; Ross, C. M., 36, 77, 78, 133, 134, 208, 209, 248, 249, 321, 381, 461, 501; Sanjána, Prof., 77, 208, 209, 249, 379, 421; Schoute, Prof., 380; Stephenson, Philip T., 421, 460; Swaminarayan, Prof. J. C., 247, 381, 462; Thompson, A. W. H., 461; Trachtenberg, H. L., 77; Venkataraman, T. K., 209, 380; Walker, G. F., 320; Wallis, B. C., 34, 76, 77, 172, 284, 499, 500; Watson, G. N., 210, 321, 322; Whitaker, Prof., 420; Youngman, C. E., 132, 134, 209, 283, 284, 285, 380, 421, 462.

Mathematics, The Beginning of, 17.
Music, Educational Value of, 267.
Newer Education, The, 275.
Noailles' (Countess de), Orphanage, 191.
Notes, 10, 52, 104, 146, 184, 220, 260, 296, 355, 394, 432, 472.
Paton, J. L., on Cross-fertilization in Schools, 110.
Petilleau, G., on Zola à Londres, 191.
Professorships and Scholarships, 126.
Ramsay, Sir W., on Professorships and Scholarships, 126.
Recognition of Schools in England, 236.
Regional Method in Geography, 153.
Royal Commission on Higher Education, 411.
Royce, Ruth, on the Educational Value of Music, 267.
Rural Education in Canada, 226.
Sadler, Prof., on the Future of Endowed Schools, 198.
Salomon, Otto, 201.
Scholarships and Prizes, 22, 57, 118, 159, 196, 234, 272, 308, 363, 446, 480.
School Athletics and Health, 370.
School Children under Six, 125.
Schoolmaster as Hero, 314.
Science in relation to Industry and Commerce, 407, 441.
Secondary Schools Association Conference, 198.
State and the Universities, 18.
Stevens, Miss Kate, 412.
Summary of the Month, 11, 54, 106, 148, 186, 222, 262, 298, 357, 396, 434, 474.
Thornton, J. S., on Otto Salomon, 201.
Thornton, J. S., on School Recognition in England, 236.
Trade Union Educational Policy, 412.
Training of the Child, 153.
Training of Teachers, 229.
Training of Teachers, Conference on, 151.
Universities and Colleges, 13, 55, 108, 149, 189, 224, 264, 301, 358, 435, 476.
Women as Heads of State Schools in Prussia, 275.
Wood-Lovejoy, E. M., on College-bred Women, 25
York, Archbishop of, on Education, 367.
Zola à Londres, 191.

REVIEWS, NOTICES, &c.

REVIEWS.

Adams's Exposition and Illustration in Teaching, 71.
Aristophanes' Acharnians (Rogers), 278.
Barnard and Child's New Algebra, 491.
Book of Nature Study, 240.
Brückner's Russian Literature, 276.
Cambridge English Literature, Vol. IV, 126.
Cambridge Modern History, Vol. VI, 72.
Chambers's English Constitution, 240.
Dodge's Teaching of History in German Girls' Schools, 453.
Duff's Literary History of Rome, 412.
Duncan's Practical Curve Tracing, 372.
Durell's Plane Geometry, Part II, 454.
Ferrero's Roman History, Vols. III, IV, and V, 315.
Frankland's Theories of Parallelism, 317.
Hawes's Crete the Forerunner of Greece, 316.
Hayward's Day and Evening Schools, 490.
Hobart's Electricity, 278.
Jäger's Teaching of History, 202.
Jusserand's Literary History, Vol. III, 26.
Keatinge's Teaching of History, 202.
Kerr's Scottish Education, 239.
Love's Differential and Integral Calculus, 73.
Milford's Haileybury College, 27.
Political History of England, Vol. VIII, 376.
Prasad's Differential Calculus, 203.
Smith's Stone Ages, 166.
Strong's Secondary Education in Scotland, 239.
Sully's Teacher's Handbook of Psychology, 127.
Tanner's Reformation and Renaissance, 203.
University Reform, Report on, 413.
Walker's Victorian Literature, 165.

GENERAL NOTICES.

Adventures of Dick Trevanion, 456.
Adventures of Phyllis, 496.
Adventures of Two Dutch Dolls, 458.
Aeschylus (Headlam), 27.
A. L. Bright Story Readers, 317.
A. L. Pupils' Atlas, 75.
A. L. Rules and Courtesies of the Road, 170.
All through a Rat, 458.
Allemandy's Reign of George III, 74.
Almanach de Hachette, 30, 498.
Andersen's Tales (Sambourne), 496.
Andrew Garnett's Will, 496.
Anson's Voyage round the World (Cash), 169.
Armstrong's Scientific Method, 282.
Arnold's Junior Story Series, 280.
Art Chronicle Academy Pictures, 319.
Atlas of Canada (White), 30.
Baldwin's Composition, 28.
Ballin's From Cradle to School, 74.
Baring-Gould's Family Names, 30.
Bartram's French Reader, 28.
Beaumont and Fletcher (Waller), Vols. VII, VIII, and IX, 492.
Beautiful England, 282.
Beavan's Fishes I have known, 244.
Becquer's Legends (Olmsted), 168.
Benians and Knight's Historical Atlas, 376.
Beowulf (Sedgefield), 492.
Berry's Professions for Girls, 418.
Bevan's Collects, Epistles, and Gospels, 130.
Bevan's Egypt and the Egyptians, 318.
Bevan's Toleration, 170.
Black's Literary Readers, Books III and IV, 169.
Black's Medical Dictionary, 246.
Black Prince, The (Dunn-Pattison), 418.
Blackie's Children's Annual, 458.
Blown away from the Land, 456.
Boiling Caldron, 459.
Book of Plymouth, 170.
Borough Polytechnic Institute, 319.
Bosom Friends, 496.
Brave Sidney Somers, 454.
Briggs's First Stage Mathematics, 416.
British Boy's Annual, 498.
British Girl's Annual, 498.
Bruce and Harper's Chemistry, 168.
Byles's Rambles in Bookland, 280.
Caesar's Civil War, Book I (Bensly), 128.
Cambridge English Classics, 492.
Cameron's Radiochemistry, 416.
Canning's Studies in Scott, 280.
Cape Colony To-Day, 206.
Carroll's Snark (Miniature Edition), 458.
Carslaw's Plane Trigonometry, 128.
Carter's How to Teach Drawing, 244.
Caspari's Children's Friezes, 170.
Cassell's Annual, 498.
Cassell's Fairy Tales for Juniors, 317.

Celia: and the Parents, 498.
Century Bible — Ezra, Nehemiah, and Esther, 130.
Chambers's Effective Readers, 204; Tales for Infants, 282; Wonder Readers, Books I–III, 169.
Changeable Twins, 496.
Charles and Hewitt's Mechanics, 168.
Chatterton's Romance of the Ship, 455.
Chaytor's First Spanish Book, 28.
Children's Book of New Testament Story, 496.
Chisini's Italian Grammar, 416.
Chums, 498.
Cicero's Select Letters (Nicklin), 167.
City of London Yearbook, 170.
Classical Association's Proceedings, 280.
Classical Quarterly, 167.
Classical Review, 167.
Cleverest Chap in the School, 457.
Clough's Certificate History, 128.
Clough's Electricity and Magnetism, 374.
Commemoration Prayer Book, 376.
Corbin's Engineering of To-day, 455.
Countess from Canada, 495.
Cousin's Société Francaise au XVIIe Siècle (Delbos), 374.
Cowen's Graph Arithmetic, 317.
Cowlishaw's Practical Mathematics, 203.
Crétin's La France, 204.
Cunliffe's Shakespearean Dictionary, 374.
Dante (Cary and Castle), 204.
Dante's Purgatorio (Money), 280.
Dent's Stereoscope, 206.
Deputy Boss, 456.
De Quincey's Spanish Military Nun (Collins), 169.
Dingwall's Experimental Geography, 318.
Dobbs's Weighing and Measuring, 317.
Doll Town Day, 458.
Don Quixote, Selections from (Ford), 280.
Edward the Seventh (Nelson), 418.
Edward's Notes on British History, 170.
Emerson (Perris), 492.
Encyclopædia of Sports and Games, Vol. I, 498.
Enfant Terrible, 30.
English History from Original Sources, 130.
English Literature for Schools, 242.
English Parnassus, 242.
Englishwoman's Yearbook, 30.
Enock's The Andes and the Amazon, 459.
Erckmann-Chatrian's Conscript (Bell), 498.
Erling the Bold, 459.
Eserich's Fortuna (Gray), 168.
Evans's General Geography, 376.
Evans and Dixon's History of Great Britain, 376.
Eve's French Verbs, 280.
Eve's History Teaching by Biographies, 74.
Fairies I have Met, 457.
Field Babies, 458.
Finn and his Warrior Band, 494.
Fischer's Organic Compounds, 28.
Fitchett's Deeds that Won the Empire, 498.
For Love and Honour, 494.
For Teddy and Me, 496.
Ford's Historical Wall Pictures, 170.
Fortunes of Flot, 498.
Four Sea Urchins, 496.
Francis of Assisi's Little Flowers, 376.
Fry's Text-book of Geography, 376.
Furneaux's Field and Woodland Plants, 32.
Ganjopádhyáya's Geometry, Books I–IV, 203.
Ganjopádhyáya's Conic Sections, 168.
Gascoigne's Works (Cunliffe), Vol. II, 492.
Gaskell's Sylvia's Lovers (Bell), 498.
Gateway to Tennyson, 456.
Gatty's Parables from Nature, 459.
Gemmell's Chemical Notes, 28.
Gibbs and Richards's Mathematical Tables, 491.
Gilliat's Heroes of the Elizabethan Age, 456
Girl's Realm Annual, 498.
Girls' School Yearbook, 282.
Gladstone, W. E., Life of (Paul), 418.
Godfrey and Siddons's Geometry, 73.
Gold-Seekers, 494.
Grantham Gates, 498.
Granville's Trigonometry, 27.
Great Aeroplane, 456.
Green's History Day by Day, 242.
Gregory's Geology, 280.
Gregory's Standard Time Dials, 170.
Greta's Domain, 495.
Grieben's Guide Books, 206; The Riviera, 492
Grierson's Scottish Fairy Book, 457.
Gwyther's English History, 28.
Hachette's Christmas Books, 30.
Harrap's Shorter French Texts, 128.
Hartnell's All about Railways, 498.
Hassell's The Great Rebellion, 318.
Hatton's Craftsman's Plant Book, 74.
Hawkwood the Brave, 455.
Hazell's Annual, 30.
Hazell's New House of Commons, 130.
Heaton's Scientific Geography, 242.
Heaton's Senior Scientific Geography, 318.
Hebrew Prophets (Woods and Powell), 170.
Henty, G. A., Life of (Fenn), 459.
Herbert Strang's Annual, 458
Herbertson's Heroic Legends, 459.
Herbertson's Introduction to Geography, 318.
Here and There, 498.
Herodotus' Clio (Sleeman), 414.
Hill and Webb's Eton Nature Study, 243.
Hoblyn's Medical Terms, 246.
Hogarth's Medical Inspection, 244
Holiday Pictures and Stories, 458.
Holmes's Picture Making, 244.
Homer's Iliad (Blakeney), Vol. I, 278.
Hope's Adventures in America, 32.
Horsemen of the Plains, 492.
Horton's Great Issues, 318.
How they came home from School, 458.
Howard's Practical Mathematics, 292.
Hugo's Feuilles d' Automne (Norman), 28.
Hyrst's Red Indians, 456.
Ideal Arithmetic for Infants, 242.
Illustrative History, 130.
In Grandfather's Garden, 496.
In the Days of Nelson, 494.
Indian and Scout, 454.
Insurgent Trail, 456.
International Modern Language Series, 128, 168.
Jack's Nature Study Cards, 244
Japanese Education, 282.
Jenkyn Clyffe, Bedesman, 454.
Jessop and Caunt's Hydrostatics, 416.
Johnson's Text-book of Botany, 73.
Jolly Book, 498.
Jones's Practical Physics, 28.
Jones and Blomfield's Mechanics, 73.
Journal of Educational Psychology, 206.
Joyce and the Rambler, 496.
Kipling's Rewards and Fairies, 457.
Kirkman's Growth of Greater Britain, 28.
Knight Errant and his Doughty Deeds, 456.
Knowles and Howard's Arithmetics, 374.
Ladner's Invicta Number Scheme, 168.
Lamb's Tales from Shakespeare (Symswood), 492.
Lang's Lilac Fairy Book, 457.
Lang's Tales of the Greek Seas, 280.
Lang's Tales of Troy, 280.
Lankester's Science from an Easy Chair, 416.
Letters of a Modern Golfer, 418.
Letts's Diaries, 492.
Lewis's Qualitative Analysis Tables, 374.
Lilac Fairy Book, 457.
Lindley's East Coast Holidays, 319.
Lion of De Montfort, 32.
Little Folks, 498.
Little Gentleman, 496.
Little Plays for Little People, 458.
Lives of the Fur Folk, 458.
Lloyd's In Dwarf Land, 318.
Loder's Historical Table, 30.
L.T.A. Register, 206.
Longmans' French Texts, 128.
Lost Island, 456.
Lower Fourth, 458.
Lyde's School Text-book of Geography, 376.
Lyster's School Hygiene, 74.
Macaulay's England, Chapter III (Bowley), 169.
Macdonald's Spanish Composition, 204.
McDougall's Arithmetical Test Cards, 242; School Classics, 318; Silent Reading Series; 318.
Macfie's Air and Health, 74.
Macmillan's Mathematical Instruments, 374.
Macpherson's Romance of Modern Astronomy, 455.
Macy's From Slavery to Freedom, 458.
Magnus's Nineteenth Century Literature, 73.
Maintz's New American Citizen, 204.
Manor House School, 457.
Marden's Success Secrets, 30.
Marks's The Cat, 282.
Marshall's New English Reading Books, 169.
Martin's Intermediate Arithmetic, 27.
Masters of Literature, 73; Emerson, 492.
Maynard Cousins, 496.
Mérimée's Charles XII (Baker), 374.
Middy of the Slave Squadron, 454.
Milk-White Thorn, 494.
Milton's Paradise Lost (Verity), 280.
Mirage de Bonheur, 30.
Molesworth's Story of a Year, 459.
Mon Journal, 30.
Moon God's Secret, 456.
Mrs. Jumbo at Home, 458.
Musée des Poupées, 30.
My First Book about Gardening, 458.
Mysterious Twins, 494.
Navy League Annual, 492.
Nelson's Book about Pets, 496.
Nelson's New Novels, 242.
Never-Never-Land, 458.
Newland's Model Citizen, 204.
Next-Door Gwennie, 496.
Nicholson, J., Life of (Trotter), 418.
Nobby's Luck, 494.
Ocean Chums, 494.
O'Connor's Esperanto Manual, 282.
Off the Wicket, 457.
On Foreign Service, 454.
Once Bitten Twice Shy, 455.
Opium Smugglers, 494.
Oppenheim's International Incidents, 206.
O'Shaughnessy Girls, 495.
Our Happy Home Book, 458.
Our Holiday on a Barge, 458.
Our Secret Society, 496.
Overdue, 456.
Oxford Readers, 204.
Oxford Standard Authors, 74, 498.
Paton's List of Schools and Tutors, 418.
Patterson's Geography of India, 243.
Peace Yearbook, 319.
Pearce's Caesar Imperator, 27.
Pereira's Spanish Reader, 374.
Petite Nièce, 30.
Philips' Nature Calendar, 30.
Photograms of the Year 1909, 74.
Photographic Annual, 319.
Pickford's Projective Geometry, 167.
Pitman's London Literary Readers, 280.
Pitman's Public Man's Guide, 282.
Pitman's Shorthand Yearbook, 492.
Plato's Ion (Stock), 128.
Plato's Symposium (Bury), 373.
Potter's Concurrent Geometry, 414.
Poucette, 30.
Prayer Book Psalter (Carleton), 130.
Prefect and Fag, 495.
Priest's German Literature, 416.
Prothero's History of Great Britain, 169.
Prothero's Manuals, 32.
Public Schools Yearbook, 206.
Ranald Bannerman's Boyhood, 459.
Red Cap Tales from Ivanhoe, 458.
Reed's Problem Papers, 242.
Rewards and Fairies, 457.
Rhys's The Children's England, 243.
Riegler's Amateur Astronomer, 168.
Riverside Literature Series, 168.
Robertson and Bartholomew's Historical Atlas of British Empire, 75.
Robinson Crusoe (Silverdale), 242.
Robinson and Beard's European History, 416.
Roche's Things seen in Holland, 376.
Rose's Reign of Queen Victoria, 28.
Rough and Tumble, 458.
Round the World in Seven Days, 494.
Roundabout Book, 458.
Royal Treasury of Story and Song, 280.
St. Bartholomew's Eve, 459.
Sand's François le Champi (Mercier), 204.
Scholar's Cartoons, 170.
School Child, 206.
Schoolmasters Yearbook, 206.
Schultze's Elements of Algebra, 491.
Scout's Son, 495.
Scouting for a King, 492.
Second String, 242.
Seeing the World, 32.
Seneca, Select Letters of (Summers), 373.
Sesame Readers, 204.
Seward's Fossil Plants, Vol. II, 317.
Shakespeare, The Children's, 376, 416.
Shakespeare, The Era (Hudson), 374.
Shakespeare, The New Hudson, 492.
Shakespeare, The Picture, 416.
Shakespeare's As You Like It (Weekes), 492.
Shakespeare's Coriolanus (Collins), 492.
Shakespeare's King Lear (Goggin), 492.
Shakespeare's Plays (Frowde), 416.
Shakespeare's Richard II, &c. (Gordon), 492.
Shoosmith's Observation Lessons, 243.
Singer Cathedral Photographs, 282.
Six Devonshire Dumplings, 496.
Smith and Longley's Mechanics, 317.
Sophocles in English Verse (Way), Part I, 167.
Source Book, An Elementary, 242.
Splendid Quest, 498.
Spy, The, 454.
Steel's Electricity and Magnetism, 317.
Stewart's Sound, Light, and Heat, 28.
Stopes' Ancient Plants, 280.
Stories Old and New, 318.
Storr's Stories of Classic Heroes, 494.
Story of a Brave Child, 458.
Story of a Year, 459.
Story of Mother Goose, 458.
Student's History of England, 204.
Sylvia's Victory, 494.
Tales and Talks from History, 458.
Tanglewood Tales (Nelson), 458.
Temperley's Senates, 418.
Tempometer, or Horometrical Chart, 170.
Tennyson, Gateway to, 456.
Thomas and Howe's Composition, 30.
Thomson's Land and the Book, 498.
Thorburn's Natural History Wall Pictures, 170.
Thorogood's Manipulation of the Brush, 74.
Thouaille's Colloquial German, 168.
Three Girls on a Yacht, 495.
Thrush, The, 206.
Tillyard's Agathocles, 204.
Timothy's Quest, 459.
To Mars via the Moon, 455.
Tom Bolt, 494.
Tourist Guide to the Continent, 282.
Travel Handbook, Winter, 1910–11, 492.
Travellers' Manual of Conversation, 282.
Troublesome Comforts, 458.
Two Dover Boys, 454.
Uncle Hal, 459.
Unique Blackboard, 319.
Unwin's Practical Solid Geometry, 73.
Up to Date, 496.
Uphill Fight, 496.
Van Schurman, Anna (Birch), 418.
Verity Lads, 458.
Very Short Poems, 458.
Very Short Stories, 458.
Vinogradoff's Roman Law, 204.
Wallis's Exercises in Geography, 243.
Walter's Russia, 456.
Webb's Junior Reader, 280.
Weise's Roman People, 128.
Weitzenböck's Komplex Symbolik, 416.
Westell's Young Naturalist, 244.
Whelpton's Physical Education, 74.
Whipple's Public School Geometry, 374.
Who's Who, 30.
Who's Who Yearbook, 30.
Wieleitner's Spezielle Ebene Kurven, 416.
Williams's English Grammar, 30.
Williams's Law of the Universities, 204.
Williams's Second Latin Book, 414.
Williams's Uniformity in Languages, 168.
Wilmot-Buxton's History of Great Britain, 318.
Wilson's Men of Mark, 456.
Wood's Physical Geography, 243.
Woods and Bailey's Mathematics, Vol. II, 317.
Wordsworth, Selections from (Fox), 169.
Workman and Cracknell's Geometry, 128, 491.
Workman's Train, 496.
Writers' and Artists' Yearbook, 30.
Yoxall's Wander Years, 376.
Zurich, Little Guide to, 206.

FIRST GLANCES, 32, 75, 130, 170, 206, 246, 282, 319, 376, 418, 460.

THE

EDUCATIONAL TIMES,

AND

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COLLEGE OF PRECEPTORS.
(INCORPORATED BY ROYAL CHARTER.)

GENERAL MEETING.

The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 22nd of January, 1910, at 3 p.m.

MEMBERS' DINNER.

The Members' Dinner will take place at the Hotel Cecil, Strand, W.C., on Saturday, the 22nd of January, at 6.30 p.m. Tickets (not including wine), 6s. each. Members who intend to be present are requested to send early notice to the SECRETARY. Members may obtain tickets for their friends.

LECTURES FOR TEACHERS.

The First Course of Lectures (Thirty-eighth Annual Series), by Prof. J. ADAMS, M.A., B.Sc., F.C.P., on "Rational and Experimental Psychology as applied to Education," will commence on Thursday, February 10th, at 7 p.m.

This Course will to a certain extent prepare for the Examinations of the College in connexion with the Associateship, the Licentiateship, and the Fellowship; but its main purpose will be to present the facts of Psychology in such a way as to enable the teacher to make use of them in the practical work of the School. The work will be so arranged as to give the students an opportunity of comparing the results of their experience with the latest results of psychological research into educational processes. The Lectures will be illustrated by frequent references to the work in all classes of Schools.

The Fee for the Course is Half-a-Guinea.

The Lectures will be delivered on Thursday Evenings at 7 o'clock, at the College, Bloomsbury Square, W.C. *For Syllabus, see page* 4.

EXAMINATIONS.

Diplomas.—The next Examination of Teachers for the Diplomas of the College will commence on the 29th of August, 1910.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in February, 1910.

Certificate Examinations.—The Midsummer Examination for Certificates will commence on the 28th of June, 1910.

Lower Forms Examinations.—The Midsummer Examination will commence on the 28th of June, 1910.

Professional Preliminary Examinations.—These Examinations are held in March and September. The Spring Examination in 1910 will commence on the 1st of March.

Inspection and Examination of Schools.—Inspectors and Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

The Regulations for the above Examinations can be obtained on application to the Secretary.

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NOTICE.—"THE EDUCATIONAL TIMES" for **February** will contain the CLASS LISTS OF CANDIDATES who have passed at the recent CHRISTMAS EXAMINATIONS of the College of Preceptors.

The Volume for 1909 is now ready, price 7s. 6d. Cases for binding the Volume may also be had, price 1s. 6d.; by post, 1s. 8d.

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LOCAL CENTRES may be formed in unrepresented districts; particulars may be obtained of the Secretary.

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T. WEEKES HOLMES, *Secretary.*

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MATRICULATION EXAMINATIONS.

Appointments will shortly be made to the Examinerships now vacant for the Matriculation Examinations in June and September, 1910, in the following subjects:—English Language, Mathematics, Greek, German.

Particulars may be obtained from the Registrar, University Registry, Cathays Park, Cardiff, to whom applications for the appointments should be sent not later than January 7th, 1910.

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SYLLABUS.

I. (*Feb* 10.) *Consciousness:* its unique character: the proper subject matter of psychology: the insulation of the individual consciousness with the consequent advantage to the teacher: polarity of consciousness: the ego or self: consciousness as a mere epiphenomenon: the subjective and the objective: meaning of the "general consciousness": the sub-conscious and its place in education.

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VII. (*April* 28.) *The Perceptual Plane:* nature of sensation: "pure sensation": the special senses: "the preferred sense": relation of sensation to perception: possibility of increasing sensation as a natural endowment: accumulation of perceptual material: nature and scope of observation: relation of observation to inference: the zone of inference: the inference point: the gaping point.

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CONTENTS.

	Page
Leader: Schoolmasters and Politics	9
Notes	10
Training of Teachers: Views of Training College Teachers—Some Educational Statistics—Sir J. J. Thomson's Paradoxes—Principal Headlam on the Root Factor of London University Reorganization—The National Home-Reading Union and the Elementary Teachers.	
Summary of the Month	11
Universities and Colleges	13
Cambridge — London — Liverpool — Joint Matriculation Board — Theological Colleges—Queensland.	
The Educational Ladder	14
Conférences Françaises: Manning et la Démocratie (M. l'Abbé Margueré)	16
The Beginnings of Mathematics (Prof. Culverwell)	17
The State and the Universities: Conditions and Prospects (*Morning Post*)	18
Current Events	21
Fixtures — Honours — Endowments and Benefactions — Scholarships and Prizes — Appointments and Vacancies — Literary — General.	
Open Court: College-Bred Women. By Evelyn M. Wood-Lovejoy, Vermont (*School Journal*)	25
Head Masters in Conference	25
The College of Preceptors: Meeting of the Council	26
Reviews	26
A Literary History of the English People: Vol. III, From the Renaissance to the Civil War, II (Jusserand)—Haileybury College, Past and Present (Milford).	
General Notices	27
New Year Books	30
First Glances	32
Mathematics	34

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THE New Year comes in like a lion and there is, alas! little chance that we shall see it go out like a lamb. We are in the throes of a general election, and that no ordinary election, a question of ins and outs, of big-endians and little-endians, but a turning point in our national annals; and it is a safe prediction that, to the New Zealander who learns his English history in what was once the City of London School, 1910 will be as familiar a date as 1688 or 1832.

This time it is the politician who is abroad and the schoolmaster takes a back seat. We do not need the warning that the bishops have been addressing to their clergy not to let party politics invade the sacred neutrality of the pulpit; and yet, while maintaining the strict neutrality that it behoves a professional journal to observe, there are some considerations suggested by the occasion which we may bring before our readers without giving offence to either party.

First and foremost, we would urge on one and all their duty to range themselves on one side or the other and play their part in the coming contest. The schoolmaster does not cease to be a citizen, nor is he as yet a Civil servant and so debarred by the rule of the service from offering himself as a candidate or appearing on the hustings. Among the many debts that the profession owes to Arnold was his outspoken vindication of the schoolmaster's claim to make known his opinions on political matters. Since Arnold's day this claim has been generally allowed, though Arnold's great example has not been followed so often as we could have wished. Yet one Harrow master stood for Parliament while still a master; another, whose Life has just appeared, was a stalwart correspondent of the *Times* on the Unionist side, and a Winchester master was twice Mayor of the city. It is hardly necessary to add that the semi-public position which a schoolmaster holds demands of him both tact and discretion in the exercise of his liberty of prophesying. Good feeling no less than policy will prevent him at the present moment from dilating in a history lesson on the national glories of Bright and Cobden, or from denouncing the Chairman of his governors as a socialist and landgrabber. A Liberal head master who was appointed as Bishop to a very Conservative diocese was asked how he liked the change. "Very much," he replied; "my clergy are capital fellows, but we do not talk politics."

Secondly, it is still possible, as Prof. Sadler showed in the Address on which we commented in November, to keep education outside the sphere of party politics; to demand of either side that it shall receive proper consideration in the forthcoming session; and to press for educational reforms on which the profession, however much they may differ in politics, are virtually agreed.

The November meeting at the Clothworkers' Hall showed conclusively that teachers desire a Register, and, further, that there is no difficulty in forming a Registration Council in conformity with the Act of 1907 that shall be representative of the whole profession. Yet, so far, the Government or the Board of Education—which, as Dr. McClure remarked, is above all Governments—or (he might have said) the Permanent Secretary of the Board, has shown no sign of taking action; and, unless teachers are insistent and persistent in their demands, they will assuredly be defeated by the Fabius Cunctator policy of the Board. We all know what that policy is, and to what it inevitably tends. It is to bring all schools, secondary as well as primary, under the direct control of the Board, and to make all teachers a branch of the Civil Service. Private schools will cease to exist, or survive, like the Trojan mariners, *rari nantes in gurgite vasto.*

Here is one clear issue on which all teachers can make common cause. There are others no less clear, though the means of attaining them may be more disputable. Treasury grants to education must be largely increased and the inequalities of the education rate thereby rectified. The school age must be raised, and the pledge given by Sir John Gorst so long ago as the Berlin Conference be fulfilled. Provision must be made for the obligatory pursuance of studies after the school age is past, and in these studies physical and manual training must be included.

These are merely samples of reforms which all teachers can unite in pressing. It would be inconsistent with our profession of neutrality to urge the claims of any candidate,

however distinguished — even those of our Chairman of Council—but we may enforce the appeal made to its members by the National Education Association and beg our readers, each in his own constituency, to help every elector and candidate to realize the true patriotism involved in promoting the instruction of the people and securing a Parliament guided by noble ideals and sound principles of national education.

The Royal Charter under which the College of Preceptors was established in 1849 declares teaching to be a profession. Let us all endeavour ourselves to make it such in deed as in word.

NOTES.

There was some tolerably plain speaking at the annual meeting of the Training College Association at the Caxton Hall (December 17) on the much canvassed subject of the Training of Teachers. Miss Luard, the Principal of Whitelands College, spoke more with scorn than with sorrow of the attainments, or rather the lack of attainment, of entrants in English. "A considerable number of the students that are admitted every year cannot write anything that one can call English, and cannot arrange their ideas or say what they mean even in those cases when they really mean anything in particular." If it be the case that the Universities, or some of them, fail to find out by their examinations "whether the candidate has some power of reading with understanding, of thinking with clearness, of expressing herself in intelligible and decent English," then there is room to suspect that something is wrong somewhere. Undoubtedly there is much need for devising more effective materials and processes of teaching composition. Mr. George Sharples, of the Lancashire Education Committee and of the Board of Education Consultative Committee, is reported to have lent the weight of his reputation and experience to the statement that about 20 per cent. of the teachers allowed to enter the teaching profession were unfitted for the task. "We have now coming into the schools men who have never seen the inside of an elementary school, and who lack the essential power of holding a class in such control that it can benefit from the knowledge the teachers have to impart." He suggested means of elimination of the unfit, but apparently neglected to show how the vacant places might be refilled with the fit. The Rev. Mr. Wesley Dennis complained strongly, and most properly, that there should be discouragement of language study, and that the authorities should be crushing out French after German.

In his Presidential Address, Mr. D. Salmon, the accomplished and experienced Principal of Swansea College, scarcely lowered the tone of vigorous reproach. Alterations had been showered upon them in the last few years, and, though he would not say that none of them were necessary, or even that none of them were improvements, yet he pleaded that in future no important change should be made without reference to a consultative committee representing every type of college. He instanced as ill-advised changes—changes that would not have passed the scrutiny of such a committee — the date for the issue of the regulations, the form of the preliminary certificate list, and the medical examination of candidates. But Circular 709 was better: it pleased everybody except such people as thought more of saving the rates than of saving the children.

> He would be ashamed to show an enlightened foreigner some of our educational statistics. He would be ashamed to let such a foreigner know that in this "land of old and just renown" seven out of every ten adult elementary teachers were untrained, four out of every ten were uncertificated, and more than eighteen thousand had no qualification whatever beyond the inability to pass even the meanest recognized examination. In making training indispensable for head teachers and in somewhat reducing the size of classes Mr. Runciman had probably gone as far as was at present prudent, but no patriot ought to be satisfied till training was made indispensable for both assistant and head teachers, till the size of classes was still further reduced, and till the manufacture of "supplementary" teachers was discontinued altogether.

The rates must indeed be considered. But Mr. Salmon's demands are too reasonable to be denied, and some means of alleviation seem urgently necessary. Meantime the Training College officers do well to be angry and to speak out their complaints in no uncertain tones.

But now Sir J. J. Thomson goes down to open the new Carnegie Physics Laboratory at University College, Dundee, and confounds us with a paradox. "It may seem a strange thing to say," he admitted, "but I think," he adventured to say, "that, for educational purposes, a bad teacher is better than a good one." Your good teacher is too clear; your admirable text-book leaves no difficulties to puzzle over. So the student does not reap the old intellectual training of puzzlement. No doubt, you can teach the student too much, in a sense; but is it the "good" teacher that does so? And, if the bad teacher does not teach too much, does he also avoid teaching the wrong thing or using a wrong method? Be this as it may, Sir Joseph gave a sample of his own experience:

> I am very much struck when I compare the acquirements and the performances of boys who come up from the great public schools to Cambridge with those of a quarter of a century ago. At the beginning of that time science was regarded as a nuisance in public schools, and the boy who took that subject had to puzzle out its difficulties himself. Now boys are taught far more in these public schools; they know more facts, so to speak, than they ever did; yet the best men are certainly no better, and I doubt if they have the same independence and the same perseverance as those brought up under the harder system.

In like manner Sir Joseph praised, yet inveighed against, the completeness and magnificence of some modern laboratories. "He thought technical education had suffered very much, and had not produced results that might have been expected." And why? "Because many of those responsible for its management had not realized that, after all, the most important piece of apparatus in the laboratory was the professor." "He thought it might be an advantage in many cases to reduce the sum expended on laboratories and apply it in providing salaries that would secure first-class men." Sir Joseph's meaning is not doubtful, but there are risks in paradoxical expression. We shall not be in the least surprised if he presently be quoted as an eminent authority for the reduction of expenditure upon laboratories. His demand for adequate salaries for first-class men is not so likely to receive prominence.

Writing in the *Standard* (December 6) on the incorporation of King's College in the University of London, Principal Headlam took care not to overlook the general interest of the University. He concluded thus:

Just one word more. We have spoken of the inadequate endowments of King's College. Only those acquainted with the inner workings know the strain of carrying on higher education in London. How wasteful the present system is few can realize. The very ablest professors are so inadequately paid that they have to spend their leisure time in supplementing their salaries, instead of carrying on research for the benefit of science or literature. No scheme of reorganization will ever place University education in a sound position in London unless endowments are provided which will relieve the heavy strain under which so far it has been carried on.

These words should be printed in the biggest capitals and placed before the University Commission and the public. They contain the most essential facts of the situation: the deplorable strain and waste and the sole means of remedy.

The National Home-Reading Union requires no testimonial, but its precepts and practice still need diffusion. A month back some two or three hundred head and assistant teachers in elementary schools in Westminster and elsewhere assembled at the Westminster Technical Institute to drink tea with Mr. Burdett-Coutts, M.P., and, under the genial presidency of Dr. Gow, to hear the praises of the Union. We should have anticipated that all elementary teachers worth their salt would have laid emphasis in their daily work upon the value of a habit of reading, and would have bethought themselves of connecting their pupils with the system of the Union, especially after school days. We are accordingly gratified to observe that two of the teachers present—a lady and a gentleman, appropriately—rose to the occasion. Miss Davies, of Tennyson Street L.C.C. School, Battersea, showed how the circles she had had in her school for more than a dozen years were worked, and how very easily many apparent obstacles and difficulties could be overcome by a little thoughtful consideration. And Mr. Biggs, of the Tennyson Street Evening School, demonstrated how admirably evening schools lend themselves to the work of the Union. Both teachers dealt with the question in an eminently practical manner. The other speakers, with greater names, were more abstract and discursive; some of them spoke well, others of them frightened themselves with rather imaginary dangers or hankered after counsels of impracticable perfection. But so it is always. The Union may well congratulate itself on the appreciation of practical teachers.

SUMMARY OF THE MONTH.

Prof. Findlay, President, and Sir Edward Brabrook, Chairman of the Council, of the Child Study Society, have addressed the following letter to the *Times*:—

The Council of the Child Study Society have for some time, in their efforts to advance our knowledge of child life, been looking for aid of a scientific character, and they approached Prof. Karl Pearson, F.R.S., who, with his equipment and laboratory at University College, London, is in a position to render exceptional service. Prof. Pearson has drafted a schedule for studying the factors influencing the social life of the child, which he desires to have filled in by heads of families or by teachers intimate with families. The number in the family need not be large, but particulars of father, mother, and at least two children are required. It is more important that the schedule should be filled up for families "of the upper middle or professional classes." The schedules are being distributed through the branch secretaries of this Society in London and in other large centres; but we fear that it may be difficult in a short time to secure the number requisite to make the subsequent investigation by Prof. Pearson worth while. We therefore ask your indulgence to appeal to your readers, to members of learned societies (literary or scientific), and to professional men and women, to assist this work by applying for a copy of the schedule and taking the trouble (perhaps two or three hours' work) to fill in the particulars. In view of the widespread interest now taken by parents in the more scientific treatment of child life, we trust that a good response will be forthcoming to our appeal. Parents who would prefer that the actual names of their family should be withheld can fill up a copy of the schedule on that understanding, supplying their name solely to the Secretary, who issues the copy with a key number. Copies can be obtained from the Secretary of the Child Study Society, 90 Buckingham Palace Road, London, S.W.

At the Annual Public Congress of the Northern Counties Education League, held at Liverpool, the following resolutions were adopted:—

That this Annual Conference of the Northern Counties Education League deeply regrets that the present Parliament will see no settlement of the Education question on the recognized Liberal principles of direct representative control, removal of tests, and abolition of statutory privileges for sectarianism. While attributing this result in the main to the exercise of the veto by the House of Lords, the Conference cannot but deplore the excessive tendency to compromise on the part of the Government, which would have rendered its measures far from satisfactory even if passed in the form in which they reached the House of Lords or to which the Government had assented.

That the work of the State in public education should be limited to moral and general instruction. At the same time, the Conference thinks that facilities should be given on equal terms for special instruction in religion—at the cost of those applying to give it, by teachers who are not members of the official staff, at a time outside the official school hours, and to children whose parents have asked in writing for the privilege.

Commenting on the new regulations relating to the study of foreign languages issued by the Army Council, the *United Service Gazette* says: "The scale of grants which may be earned by officers who qualify as First Class Interpreters after January 1, 1910, will be as follows:—French, £24; German, £50; and Italian, Spanish, Dutch, Danish, Norwegian, Swedish, Modern Greek, Rumanian, Portuguese, Hungarian, Bulgarian, Czech, and Serbo-Croatian, £30 each. The highest grant (£80) is awarded for Russian. Officers who qualify as Second Class Interpreters under the same conditions after January 1, 1910, will receive one-half of the above sums. For qualifying as a First Class Interpreter in Arabic, Turkish, Persian, or Amharic (Abyssinian), the reward will be £120, and as a Second Class Interpreter, £60. For a First Class Interpetership in Cape Dutch the grant is to be £30, and £15 for a Second Class Interpretership. Special regulations are laid down for the study of Russian, Chinese, Japanese, and Cantonese, which provide for a limited number of officers being selected for a year's course of study and residence in Russia, and for a two years' course of study and residence in China and Japan. In the case of the latter two countries, the selected officers will receive, in addition to the ordinary pay of their rank, a consolidated allowance of £150 per annum, payable quarterly in arrear, while in the country. They will also receive a reward of £100 on passing and obtaining ·75 of the total marks for the examination held at the end of twelve months' residence in the country, and a further reward of £75 on passing and obtaining ·75 of the total marks in the final examinations. Considered as a whole, the new regulations are of a liberal character, and should certainly conduce to the encouragement of linguistic studies among officers of the Army."

The American Consul at Chemnitz reports as follows to his Government concerning the study of foreign languages in German schools:—

Throughout Germany the systematic training of the youth in foreign languages has made rapid progress during recent years. The effort has been especially marked in the great industrial and commercial centres. In Chemnitz, for example, it is regarded as absolutely necessary that a young man entering the counting room of a factory, of a bank, or of a large commercial house, should be familiar with one or, better, two foreign languages.

Ample provision is made for such instruction in the higher schools. Excellent facilities are afforded in the business colleges. Courses are organized under the auspices of mercantile associations, which enable clerks to master another language at a modicum of expense, while there

are in every city several schools and institutes devoted exclusively to linguistic training, and, of course, numerous private instructors.

In Chemnitz and the adjoining territory the relations of the manufacturing interests with foreign lands are so extensive and so predominant that it was decided in 1907 to introduce into the public schools optional classes, in French and English. The result of the past two years shows that this new feature met a genuine demand. In the year of introduction 715 children entered the classes, in the second year the number grew to 1,084, and this year it is 1,439. Of this latter number, 913 are studying English and 526 French.

Thus far the educational authorities make no provision for instruction in any modern languages except French and English. Instuction in the other European languages is secured in private language schools or obtained from independent teachers. To a considerable extent this linguistic instruction is imparted by native-born French and English teachers, although much of the class work is conducted by German masters, who have excellent grammatical and literary command of the various tongues. The policy pursued in Chemnitz finds its counterpart throughout the Empire, and it constitutes a powerful factor in the rapid forward movement of Germany as a power in international commerce.

The prizes at the Birkbeck College were distributed by the United States Ambassador (Mr. Whitelaw Reid). The Ambassador said that some special interest in the College was naturally felt by an American, for it was founded in 1823, earlier than the earliest kindred institution in America. The founder of this College announced his intention of giving instruction in the principles of the arts then practised and the various branches of science and useful knowledge "to the highest and the humblest alike." His words recalled to a citizen of New York words uttered immediately after the Civil War in the Legislature of that State, "I would found an institution where any person can find instruction in any subject." Those words were uttered by a mechanic, and the institution that he founded was now Cornell University, with four millions of property and endowments, spacious buildings, and 4,500 students. The chief object of education was not so much to teach facts as to make character. The education most needed after the foundation of the primary schools was that which would best fit the pupils for what they had to do in life. If reading made a full man, as Bacon said, there could be no doubt that too much reading and too early specialization might make a narrow man. What better remedy could be found than an education that devoted all the time an individual pupil could spare to a culture that broadened the mental horizon, to a development of character that made men worthy of their country and able to carry on the great traditions of their race, and an education that nevertheless successfully bound up with all those the specialization which was to fit people for life? It was because that College, avowedly founded to fit students for the arts they were to practise, had grown in the direction of giving also as much general and liberal culture as possible that it had become a great benefactor to the community it served. When young men and women spent their days in earning a living and the evenings in learning that which ennobled life, who should say that the evening classes of that College were not its best work, and most fruitful in results? It was said that the day of opportunity had gone. He heard it said fifty years ago, yet in those fifty years the world had seen an errand boy of Pittsburg revolutionize one of the greatest industries and make, from his own honest earnings, the most princely benefactions to education that the world had ever seen from one individual; another errand boy who had flooded the world with light, abolished distances, mountains, and seas, and enabled man to whisper over continents; and two young men, who were bicycle dealers, conquer the air. No generation, since Britain was a Roman province, since civilization began, had ever seen so many, so varied, such brilliant successes as had been seen in the present generation, and the cry of despair came from cowards or traitors in life's battle.

At a luncheon given by the Chairman and Governors of the Girls' College Association (Nov. 24), the President of the Board of Education warmly recommended the objects of the proposed school for daughters of Nonconformists at Chislehurst. A great deal of attention (he said) had been given to the question of secondary as well as of elementary education, and the proposal to make special provision for the daughters of Nonconformists was one that had been hitherto curiously overlooked. He had been looking over the Board of Education list of schools open to girls, and found there was none that fulfilled the conditions proposed to be supplied by this scheme. The private school, to a large extent, had died out, and the only way in which the Board of Education could help such schools as were proposed in this new scheme was under the Charitable Trust Act or as endowed schools, and that was only by seeing that such money as was held in trust was devoted to the specific purpose. And they could further offer the benefit of their Inspectors, who had been an advantage to many schools, but they had no control over such schools, and desired none. No sort of religious controversy would arise in connexion with their school, and no religious difficulty would be experienced as to the management of the school, as they asked for no outside help. Being situated near London, which sooner or later was bound to be the greatest educational centre of the Empire, it would have the advantage of tuition in connexion with the reorganization of the London University, and the vast extension of scientific tuition would enable the governors to draw on the London profession outside its own staff in a way never experienced by the provinces. Although the school might appear to be starting with a small number of girls (thirty), it would have at its command masters and mistresses drawn from the best educational system in the Empire.

The Oxford University Extension Delegacy's Annual Report states that the year just ended has been the busiest in the history of the Delegacy. Acting under the authority of an amended statute, the Delegacy in Michaelmas Term last year appointed a committee of fourteen persons, seven of them members of the Delegacy and seven representatives of various working-class organizations, to be a standing committee of the Delegacy to deal with the establishment and organization of tutorial classes for workpeople. Classes were held at Rochdale, Longton, Chesterfield, Glossop, Littleborough, Oldham, Swindon, and Wrexham. The students attending the classes were almost entirely manual workers, with a slight intermixture of school teachers and tradesmen. Of the total number of 237, 59 per cent. were drawn from the engineering, textile, and building trades. In each case the members of the classes pledged themselves to maintain regular attendance for a period of three years. The Delegacy in this connexion acknowledge the generous assistance given by New College, Magdalen, Trinity, Balliol, Queen's, University, Merton, Keble, and Exeter Colleges, and the offer of All Souls College to contribute £200 a year for three years towards the stipend of a teacher, to be known as the All Souls teacher. The Delegacy is convinced that the establishment of such tutorial classes for working men and women represents a very important development of their work.

At a meeting of the Mohammedan Anglo-Oriental College (Aligarh) Association at the Caxton Hall an address on "The Educational Policy of the Indian Moslems" was delivered by a former principal of the College, Mr. Theodore Morison, of the India Council. Mr. Morison said that Aligarh was the embodiment of the Mohammedan conception of modern education, and if the Aligarh experiment failed the whole policy would receive a rude shock, and a generation of the community would be wasted in uncertain aims and distracted counsels. He fully recognized that it was essential that the direction of the policy of the College must be, and must be known to be, in Mussulman hands, but it must be remembered that for years to come the assistance of an English staff would be required. Aligarh was founded on the English public-school model, and had divided education into instruction and the training of character, or breeding. In this way Aligarh had made a new departure in Indian education, which had been copied by the Central Hindu College at Benares. He urged that, if Aligarh was to continue to lead Moslem public opinion, its policy must be modified to suit the changed conditions. It should encourage the formation of Islamic colleges in every province, so that it might specialize in higher education. Its energies ought to be concentrated on developing the M.A. teaching. When it had thus become a recognized centre for the higher teaching of Mussulmans all over India, it would be in a position to approach Government with a petition for a charter making it the Mohammedan University for India.

Dr. H. T. Bovey, Rector of the Imperial College of Science and Technology, speaking at Sheffield University, said that the real question the nation had to ask itself at present was, "Is technical education a necessity in these times, or is it not?" If it was, let them be willing to pay for the real thing, and not a sham, however cheap it might be. He pointed out, too, that if the manufacturers were to profit by this technical education, they

must be willing to put their hands in their pockets and keep their laboratories and their equipment up to date. There were, however, two ways in which they hoped expenses might be diminished without lowering efficiency: he referred to co-operation and concentration. In the development of the Imperial College they were trying both these methods—first by combining into one whole hitherto separated institutions, each teaching scientific work; and, secondly, by the scheme under which Sheffield (and, perhaps, later, other institutions and Universities) would undertake to provide for certain departments of their work, which, of course, would be recognized in the diplomas. They looked forward with much confidence to the result of such co-operation, especially if it was real co-operation, in which the aim of the well-being of the students would keep their policy free from selfish considerations.

Continuing, Dr. Bovey said that this special form of co-operation, as giving the student a wider experience, was in line with all schemes of interchange, whether by professors, or by students taking post-graduate courses or special courses in their undergraduate days. It should be noted, however, that any scheme of interchange required extremely careful adjustment—such as they were trying to give between the Imperial College and the University of Sheffield—lest, in trying to gain diffused experience, they failed to attain solidarity. They were thrown back upon the problem which was being discussed by various head masters in the papers just now, and which had raged round the classical stronghold—the problem of whether they could best produce the highest type of mind by localizing, as it were, the education, and confining it to one subject, or giving it a variety, from which each mind might chance to pick what was its best food. He suggested that there was no royal road—such as the choice of any single subject—to the production of the highest type of mind. One subject might be better than another, but no subject would give sufficient means for the full equipment of a man, any more than food would produce an athlete without digestion. It was the power of assimilation, and the educator's success in drawing out that power, which was the chief thing.

A return (323) has been issued showing the number and names of the fee-charging secondary schools receiving the higher grant in which the ordinary percentage (25 per cent.) of free places has been reduced or varied on grounds deemed by the Board of Education to be sufficient. An explanatory note states that the total number of secondary schools in England and Wales now recognized as eligible for grant under the Board's regulations is 926. Of these 61 are on the lower scale of grant (earning £2. 10s. for each registered pupil between twelve and eighteen years of age). The remaining 865 schools are on the higher scale of grant (earning £5 for each registered pupil between twelve and eighteen years of age). At two of these schools no fees are charged; 746 are required to offer 25 per cent. of free places; the remaining 117, in which a lower percentage is required, form the subject of the return.

The Rev. John Bickley Hughes, for twenty-six years (1847–1873) Head Master of Blundell's School, Tiverton, and for thirty-five years (1874–1909) Vicar of Staverton, died at the age of ninety-two. He was Rural Dean of Totnes from 1881 to 1900. He was a keen student of architectural and archæological subjects and an energetic sportsman.

Mr. G. B. Doughty, M.A., assistant master at Dulwich College for forty-nine years, died at the age of seventy-six. He was a great lover of music and for many years sang in the Handel Choir.

UNIVERSITIES AND COLLEGES.

(*From our own Correspondent.*)

Cambridge.

"Sweet are the uses of advertisement!" This is not what the Senior Proctor said, but it is a fair account of what he meant by his letter on the subject of the stag-hunting case which was taken up so vehemently by the R.S.P.C.A. There is no doubt that hunting a very tame stag does not appeal to sportsmen, though it may be the cult of a riding set; still, for all that, the affair had been thoroughly dealt with by the Proctors, and further proceedings before the magistrates were, as it turned out, absolutely useless.

The financial authorities have very wisely ordained that in future a definite quota of their available funds shall be devoted to the upkeep, as opposed to the original construction, of buildings. This is a step in the right direction, as the unknown demands of the tax and rate collectors have to be met, caretakers are required, and renewals are in the very nature of things necessary.

From time to time Cambridge gets its leading men painted. Mr. A. E. Shipley is the latest victim. A man who knows his business and does it, he is a good sample of the man who keeps the Cambridge machine running without any undue splash or fussiness. Fortunately, Mr. Shipley's smiling countenance invites perpetuation, but the precedent must not be carried too far—not, at any rate, till some of our great ones have had their hair cut.

Much discussion has arisen about certain changes in the Modern Language Tripos: the debate in the Senate House was enriched by one remark by the veteran Prof. Skeat, who observed that there was one language which was quite a large enough topic for a Tripos—and that subject was English. And Prof. Skeat is a person who has given up "thinking" for knowing.

The new system of examinations is just beginning to show itself in its true colours. In most colleges the General is not taken by the Poll-men; they go straight from Little-go to a Special. The men may roughly be divided into two classes; those with a scientific turn take Physics and Engineering or Chemistry, while the men without such tastes go in for History and Law. Military candidates will take Law or History with the new examination in military subjects. Although the word "Greek" has not been mentioned, the compulsory study of that subject has to all intents and purposes been eliminated. The Little-go can now be passed by any one who can, with a crib, get up the translation of, say, one book of Homer, grammar is no longer a separate paper, and unseen translation is not necessary in Greek. The Cambridge degree is now accessible to any boy who has passed the sixth standard. Further than this, it may be suggested that, starting with a slight knowledge of Latin, a person of average intelligence properly taught could take his Cambridge degree in 100 days' work.

The report of the Indian Civil Service Board informs us that twenty-two men who have resided in Cambridge were among the number of the seventy-three who were selected for the various appointments. It would be interesting if the Board would inform the public where the successful candidates obtained their training. Some of the statistics appear somewhat misleading. For example, we are told that the thirty-eighth man was tenth Senior Optime, while the Senior Wrangler of the year was forty-second. It is obvious that, in an examination where aggregate marks score, we should know the relative importance of each subject for mark-gaining purposes; for example, would a Senior Classic (if there was one) or a Senior Wrangler, with no strong second subject, be able to hold his own with a man who has taken a Third Class in Classics and Science? There is no doubt that the Indian Civil candidates are well looked after and thoroughly taught; but it is quite clear that the continuous work necessary for such difficult examinations is hard to get under the conditions of University life at Cambridge, while at Oxford it is practically impossible.

Mention of Oxford suggests a reference to the football match. The Cambridge side was outclassed; good though our forwards were, their efforts in rushing the ball through the scrum were frustrated by the brilliant play of Gotley, backed up by a three-quarter line which gave one of the finest displays ever seen at Queen's Club.

There is a rumour that the Colleges will meet a day later than usual to escape the turmoil of the General Election. It is quite on the cards that, in the more or less near future one, if not both, the political parties may run candidates chosen from among the junior members of the University.

As these notes are being penned, the Local Examinations are in full swing. There is a gradual transference of candidates from the winter to the summer examinations with a considerable aggregate rise. If the late Cecil Rhodes had ever had any dealings with the staff in Mill Lane, he might have changed his views on the business capacity of University men, and he might have found that courtesy and tact are not necessarily dissociated from the vigour and capacity required by a vast organization.

There are rumours of a municipal golf course at Cambridge. The Town Council are enterprising and energetic; the idea may

materialize. There has been no serious outbreak of disease this term, but for all that the Corporation have bidden the Water Company to put their house in order.

London. The incorporation of King's College with the University of London takes effect on January 1.

At a recent meeting of the Senate, a new syllabus in Chemistry to apply in and after January, 1911, was adopted. Candidates will be required to give evidence by their answers that they have seen experiments illustrative of all the subjects included in the syllabus, and that they have themselves performed a variety of simple qualitative and quantitative experiments. The questions set will have regard to the conditions under which the subject may best be experimentally taught in schools.

An Appointment Board has been constituted to assist graduates and students of the University in obtaining appointments, and to co-ordinate and supplement the work done by the schools and institutions of the University with this object. The registration fee has been fixed at 5s., renewable annually so long as the name is retained on the Register. Application for further information should be made to the Secretary of the Board at the University.

Liverpool. The Vice-Chancellor states in his annual report: "The experience of this session has confirmed the statement made in my last report that the University is now drawing students from parts of the community that it never reached before. Much is due to fuller and wider knowledge. It takes years for the facts to spread and to be grasped as practical realities; but parents are beginning to learn the possibilities that are offered to their children. Still more is due to the influence of the teachers in our elementary schools. Many of them are members of our body; others are allied to us by sympathy and interest. They have appealed to the affection of the parent and the ambition of the child. And their influence — their uplifting and inspiring power — never greater than it is to-day, has brought us recruits that we never should have had without their aid."

Joint Matriculation Board. The Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield reports that the number of candidates taking the Matriculation Examination in its ordinary form has fallen from 2,214 to 1,953, while the number of those who have satisfied the examiners has risen from 960 to 1,067. The number of candidates already holding Matriculation Certificates who present themselves for Supplementary Certificates in a limited number of subjects at the Higher Standard has risen from 17 to 112. Generally, the number of candidates presenting subjects at the Higher Standard has risen, but in several cases these candidates were ill advised to take the Higher papers. The number of exemptions granted to holders of Certificates of other bodies has risen from 142 to 256.

The Board has again conducted the examinations on which recommendations are made for the award of scholarships by the Education Committees of Lancashire, Cheshire, the North and West Ridings of Yorkshire, Manchester, Liverpool, Leeds, Salford, Southport, and Blackpool, and also in behalf of certain educational foundations and for entrance scholarships in some of the Universities, and has conducted other examinations for the Education Committees of Lancashire, Cheshire, and East Riding of Yorkshire and Stockport.

Theological. The recent decision of the Bishops that, after the year 1917, every candidate for Ordination must be a graduate in Arts of some University, will lead (says the *Church Gazette*) to some reorganization of our Theological Colleges. The Council of St. John's College, Highbury, have already led the way by securing a hostel in connexion with the University of Durham. The opening took place on October 12, and we gather that the enterprise has had the cordial support of the University authorities. Moderate Churchmen will have to be alive also to their interests in the other Universities. At Cambridge a House of Study, named "St. Anselm's House," has just been opened, and one of the Cowley Fathers, the Rev. P. N. Waggett, placed in charge of it. The general tone at Cambridge has, until now, been more or less favourable to Evangelical Churchmanship. The advent of the new influence will require a corresponding effort on the part of Moderate Churchmen. At Oxford, much is already being done in the Evangelical interest, but there is probably room there also for more active effort.

Queensland. Sir William MacGregor, the Governor, dedicated Government House Buildings as the home of the Queensland University (December 11). It was announced that £50,000 had been set aside for initial expenditure and £10,000 annually for working expenses, and that there would be sixty foundation scholarships.

THE EDUCATIONAL LADDER.

Birmingham University.—Walter Myers Travelling Scholarship: John Dale.

Cambridge University.—Members' Prize for Latin Essay: Joseph Brennan, Scholar of Christ's, and Cyril M. Picciotto, Scholar of Trinity, equal.—Carus Greek Testament Prizes: Bachelors' Prize, G. A. Chase. B.A., Queens', and F. F. Gledstone, B.A., St. John's, equal; Undergraduates' Prize, W. J. Lyon, B.A., Emmanuel; *proxime accessit* P. Gardner Smith, B.A., Jesus. — Walsingham Medals (Biology and Geology): L. J. Wills, B.A., Fellow of King's; H. H. Thomas, B.A., Downing.—Crosse Scholarship: Percival Gardner-Smith, B.A., Jesus. —Maitland Prize: L. Alston, M.A., Christ's.—Jeremie Septuagint Prizes: (1) not awarded; (2) F. S. Marsh, B.A., Selwyn.—Whewell Scholarships (International Law): (1) not awarded; (2) W. G. Constable, B.A., St. John's. Re-elected, D. W. Ward, B.A., Fellow of St. John's.—George Williams Prize: C. E. Tomkinson, B.A., Sidney Sussex.—Members' Prize, English Essay: A. K. Gray, Jesus; *proxime accessit* G. H. L. Mallory, B.A., Magdalene; honourably mentioned, Alexander Ramsay, B.A., Gonville and Caius.—Clerk Maxwell Scholarship: E. M. Wellisch, Emmanuel.

Christ's.—Scholarships: S. M. Wadham, Merchant Taylors School, London, £80 for Natural Science; G. L. L. Carter, Latymer Upper School, Hammersmith, £60 for Mathematics; R. H. Wagner, Harrow School, £60 for Natural Science; H. Weisberg, Central Foundation School, £40 for Mathematics; H. E. Smith, Oundle School, £40 for Classics; E. X. Kapp, Owen's School, Islington, and abroad, £40 for Modern Languages.—Exhibitions: L. W. Berrow, St. Olave's Grammar School, £30 for Mathematics; A. H. Dodd, Camberwell Grammar School, £30 for Natural Science.—Fellowship: Francis H. A. Marshall, M.A., D.Sc. Edin.

Clare.—Open Scholarships: £60, for Classics, L. B. Sloan, Charterhouse; for Mathematics, I. Abrahamson, University College, London; £50, for Mathematics, W. L. Scott, St. Paul's; for Natural Science, H. B. Bullen, St. Paul's, and S. Wilkinson, Bradford; £40, for Classics, H. M. Ferguson, Charterhouse, and T. G. Lloyd, Rossall; for Mathematics, A. H. Parry, Mill Hill; for Natural Science, A. Whatham, University College, Aberystwyth. — Exhibitions of £30, for Natural Science, C. Buttanshaw, Oundle; for History, W. L. Alexander, Uppingham.—Archdeacon Johnson's Exhibition: W. L. Alexander.

Emmanuel.—Senior Fellowship: C. E. Raven, B.A., Dean of the College, formerly Scholar of Gonville and Caius.—Scholarships: L. W. Jones, University College of N. Wales, Bangor, £80 for Natural Science; E. D. Marris, Bromsgrove School, £60 for Mathematics; J. E. Scott, Clifton College, £60 for Classics; W. H. Milburn, Duke's School, Alnwick, £60 for Natural Science; D. H. Cowie, King's School, Canterbury, £40 for Mathematics; C. E. Wurtzburg, Aldenham School, and H. G. Dorrell, Charterhouse, £40 for Classics; E. D. Tongue, Taunton School, £40 for History. Exhibitions: T. M. James, Clifton College, £30 for Mathematics; S. R. Prall, Tonbridge School, £30 for Natural Science; H. H. G. Bennett, Latymer Upper School, Hammersmith, £30 for History.

Gonville and Caius.—Scholarships: E. W. Perry, St. Paul's School, £80 for Classics; R. T. M. Haines, Clifton College, £80 for Natural Science; T. Renton, Latymer Upper School, Hammersmith, £80 for History; G. McKerrow, Clifton College, Salomons Scholarship of £70 for Engineering; G. D. Barron, Berkhamsted School, and C. K. James, Cheltenham College, £60 for Mathematics; S. A. C. Green, Dulwich College, £60 for Classics; H. Lang, Christ's Hospital School, £40 for Mathematics; H. H. Gardiner, Haileybury College, and E. P. Smith, Tonbridge School, £40 for Classics; D. H. Gotch, Oundle School, £40 for Natural Science; B. M. Pickering, Merchant Taylors School, London, £40 for Hebrew. Exhibitions: D. A. Saunder, Marlborough College, £30 for Mathematics; T. S. H. Schäfer, Edinburgh Academy, and P. D. Sturge, Clifton College, £30 for Natural Science; H. V. Berry, City of London School, £30 for Modern Languages.

King's.—Foundation Scholarships: P. C. B. Blair, Fettes College, and E. L. Finlay, Eton College, £80 for Classics; E. Forrester-Paton, the Leys School, for Natural Science (honorary); W. R. O. Moulton, the Leys School, and G. C. T. Giles, Eton College, £10 for Classics.—Minor Scholarships: J. C. Waller, Charterhouse, £60 for Natural Science: E. O. Lee, Malvern College, and R. C. Hollond, Eton College, £60 for Classics. — Exhibitions: E. D. Morgan, Dulwich College, £40 for

Natural Science; C. Walmsley, Manchester Grammar School, £40 for Mathematics; S. Riddiough, Bradford Grammar School, £40 for Natural Science; W. J. Oatfield, Hereford School, Fielder Exhibition for Greek.

Jesus.—Scholarships: C. E. Jones, Latymer Upper School, Hammersmith, £80 for Mathematics; F. Hardwick, Nottingham High School, £60 for Classics; W. R. Taylor, St. Edmunds School, Canterbury, £60 for Classics (Rustat); H. V. Parker, Camberwell Grammar School, £40 for Natural Science; O. V. Guy, Marlborough College, £40 for Classics (Rustat); J. D. Maitland, Mill Hill School, £40 for History.—Exhibitions: H. B. Salmon, Haileybury College, £30 for Classics (Rustat); J. C. Holmes, Cheltenham College, £30 for Natural Science (Rustat).

Non-Collegiate.—Clothworkers' Company's Exhibitions (£30 for three years): H. Bedford and T. Smith.—Censor's Exhibitions (£15 for current year): G. F. Glaister and J. Weaver. C. W. Janvrin has been appointed Librarian for the current year at a stipend of £15.

Pembroke.—Scholarships: O. H. Brown, Peter Symonds' School, Winchester, £80 for Mathematics; G. C. F. Mead, Aldenham School, £60 for Classics; M. S. Pound, Highgate School, £60 for Mathematics; A. A. Piggot, Charterhouse, H. Grose Hodge, Marlborough College, and C. S. W. Horsefield, Monkton Combe School, £60 for Classics; A. F. R. Evans, Ipswich Grammar School, £40 for Natural Science; K. H M. Sutton, Rugby School, £40 for Classics; R. E. Pollock, Harrow School, £40 for Mathematics; A. P. Richards, St. Edmund's School, Canterbury, £40 for Classics. Exhibitions: R. D. Tonge, Fettes College, £30 for Natural Science and Mathematics; W. T. L. Becker, Harrow School, £30 for Natural Science; P. G. Coombs, Oundle School, and J. R. B. Roberts, Charterhouse, £30 for Classics; A. E. D. Bliss, Rugby School, for Classics (honorary); R. ff. Hasluck, Marlborough College, £20 for Classics.

Peterhouse.—Scholarships: C. W. Gilham, East London College, £80 for Mathematics; C. O. St. J. Sanderson, Bedford Grammar School, £60 for Classics; P. C. Vellacott, Marlborough College, £50 for History; A. T. M. Murfet, Lancaster Grammar School, £40 for Classics.—Exhibition: C. B. Maynard, Central Foundation School, London, £30 for Mathematics.

Sidney Sussex.—Scholarships of £60: E. G. Barter, Dulwich College, for Natural Science; M. Daniels, Central Foundation School, London, for Mathematics; B. Lockspieser, Hackney Downs Secondary School, for Natural Sciences; A. Mitchison, St. Dunstan's, for Classics; and S. A. Pakeman, Bristol Grammar School, for History.—Scholarships of £40: C. J. Hamilton, Blundell's School, for Mathematics; C. A. Richardson, Mill Hill School, for Mathematics; D. G. Rouquette, Eastbourne College, for Classics.—Exhibitions of £30: G. K. McArthur, Norwich Municipal School, for Natural Science; C. F. Smith, Wellington County School, for History; W. N. H. Tarrant, Taunton School, for Classics; and T. P. Watson, Malvern College, for Classics.

St. John's.—Scholarships: E. H. D. Whitfield, King's School, Chester, and B. W. Gilbert, Nottingham High School, £80 for Mathematics; T. Trought, King Edward's High School, Birmingham, £80 for Natural Science; H. Herzl, Clifton College, £80 for Modern Languages; F. M. Morris, Victoria University, Manchester, and H. Jeffreys, Armstrong College, Newcastle-on-Tyne, £60 for Mathematics; G. N. L. Hall, Bedford Grammar School, £60 for Classics; P. Quass, University College School, and C. E. Roberts, Northampton and County School, £60 for Natural Science; E. H. F. Blumhardt, Malvern College, £60 for History; T. T. Scott, Wolverhampton Grammar School, and B. R. Whitehouse, King Edward's High School, Birmingham, £40 for Classics; G. R. Edwards, St. Paul's School, £40 for Natural Science; J. K. Dunlop, Mill Hill School, £40 for History. Exhibitions: A. K. Fison, Aldenham School, £30 for Mathematics; B. L. Chadwick, Shrewsbury School, and J. S. Stephens, Leighton Park School, Reading, £30 for Classics; E. A. Kaye, Longton High School, £30 for Natural Science; E. J. L. Grear, Mill Hill School, and J. F. Harris, Denstone College, £30 for History; G. W. Bain, Marlborough College, £30 for Modern Languages.

Trinity.—Entrance Scholarships: H. D. Bentliff, Dulwich, for Natural Sciences; C. L. Bullock, Rugby, J. Burnaby, Haileybury, W. G. D. Butcher, Eton, and G. K. M. Butler, Harrow, for Classics; H. Glauert, King Edward's, Sheffield, for Mathematics; G. W. V. Hopley, Harrow, and K. W. M. Pickthorn, Aldenham, for History; D. H. Pinsent, Marlborough, for Mathematics; E. B. Shanks, Merchant Taylors, for History; A. Shaw, Northampton County School, and G. P. Thomson, Perse, for Natural Sciences; R. D. Whitehorn, St. Paul's, for Classics. Exhibitions: N. K. Adams, Winchester, for Natural Sciences; J. B. Andras, St. Paul's, for Mathematics; E. H. Carr, Merchant Taylors, for Classics; M. C. Day, Marlborough, for Mathematics; A. J. Dorward, Edinburgh University, for Moral Sciences; H. W. Leatham, Charterhouse, for Natural Sciences; E. W. Philip, Birkenhead, for Classics; J. Proudman, Widnes, for Mechanical Sciences and Mathematics; R. Smith, St. Andrews University, for Moral Sciences; C. E. Winn, Oundle, for Mathematics; J. W. Wootton, Nottingham High School, for History; and P. Worthington, Harrow, for Natural Sciences.

Trinity Hall.—Scholarships: for Classics, £50, P. H. Halden, Westminster, and S. W. H. Welsby, Malvern; £30, C. R. Langham, Rugby; for Mathematics, £40, R. B. Hudson, Pannal Ash, Harrogate; for History, £30, F. W. Buckler, Wyggeston; for Natural Science, £50, T. Williams, Aberystwyth; £30, C. H. S. Kipping, Nottingham High School.

Canterbury, King's School.—Junior King's Scholarships: R. S. F. Cooper (Bath College), R. F. Mason (for Mathematics), H. G. Kain, both of King's School.—Probationer King's Scholarships: W. J. Potts (Miss Ingram, St. Leonards), G. H. Crosse (Faversham Grammar School), T. R. Juckes (Mr. Douglas, Godalming), J. G. L. Poulter (Mr. Heslop, Bexhill), E. F. Hyde, King's School.—Entrance Scholarships: L. W. Goldsmith (Mr. Pearce, Sidcup), W. J. Potts (Miss Ingram, St. Leonards), G. B. Pratt (for Mathematics, Mr. Gilbert, Eastbourne), R. S. F. Cooper (Bath College), R. V. G. Tasker (Temple Grove, Eastbourne), A. B. Cowley (Mr. Healey, Malvern), A. N. Venning (Bath College), E. F. Hyde, King's School.—House Scholarships: R. A. Rossborough (Miss Watson Willis, Eastbourne), J. G. L. Poulter (Mr. Heslop, Bexhill), P. L. Frampton (Mr. Knowles, Southwold), and A. H. Shalswell (Mr. Watkins, Caterham).

Haileybury.—Senior Scholarships for boys in the School under 16: C. J. Richards, A. D. Burnett Brown, C. H. Hunt, E. J. Goodhart; J. C. Bourne and J. M. Round, equal.—Junior Scholarships for all boys under 14: C. N. Crawford (the Rev. E. Rudd, Souldern Rectory, Banbury), M. N. P. S. Coghill (the Rev. E. Earle, Bilton Grange, Rugby), P. J. Ram (Mr. C. H. Gore, Hymers College, Hull), E. J. Cooper (Mr. W. R. Morton Clarke, Blatchington Place, Seaford, Sussex), D. K. Leclercq (Mr. G. Davison Brown, Cottesmore School, Brighton), E. A. Meek (the Rev. H. C. L. Tindall, Hurst Court, Ore, Sussex), H. J. H. Hendley (Mr. R. S. Lea, Higham-on-the-Hill, Nuneaton), H. E. Bussell (Mr. A. Harvey Trollope, Tyttenhanger Lodge, St. Albans), R. B. M. Jenkins (Messrs. S. A. Phillips and C. J. B. Webb, Branksome Park, Bournemouth), G. F. Radcliffe (the Rev. F. J. Hall, Northaw Place, Potter's Bar).

Highgate.—Foundation Scholarships: C. A. Bedells, H. R. Barfield, G. N. Ling, A. H. Boney (Highgate School), and C. Cartwright (Merchant Taylors School).—Gladstone and House Scholarship: H. N. Packard (Mr. B. C. Pearce, Durston House, Ealing).—Entrance House Scholarships: T. G. Lindley (Mr. C. Mallam, Heathfield, Keston) and R. H. Tipper (Mr. E. Montauban, The Hall, Hampstead).

London: Law Society.—Travers-Smith Scholarship: Cyril F. Entwistle, LL.B., Bolton.

London University.—Jessel Studentship (Research in Mathematics): E. N. da C. Andrade, B.Sc., University College.

University College.—Hester Rothschild Prize (Hebrew and Aramaic): B. L. Liebermann.—L. M. Rothschild Prize (French Language and Literature): Claude Gilli; *proxime accessit* P. V. Thomas.—Slade Prize of £25 for Figure Composition: M. G. Lightfoot.

London (Royal Free Hospital) School of Medicine for Women.—Mabel Webb Research Scholarship: Miss Louisa Hamilton, M.D.—St. Dunstan's Entrance Exhibition (£60 a year for 3, to 5, years): Miss Norah Hamill, St. Paul's Girls' School.—School Scholarship (£30): Miss Lyndall Rice, High School, Brisbane.

Manchester University.—Vulcan Fellowship (Advanced Study and Research in Mechanical and Electrical Engineering): G. Cook, M.Sc.—Platt Biological Scholarship: J. Ramsbottom, B.A. — Junior Platt Physiological Exhibition: A. Graham Bryce.—Dalton Chemical Scholarship: Mary E. Dobson, B.Sc.—Dalton Natural History Prize: Kate Duffy, B.Sc., and H. S. Holden, B.Sc. equal.—Bles Hebrew Prize: C. H. Davies.—Bishop Lee Greek Testament Prizes: Senior, D. E. Auty, B.A.; junior, J. H. Clarke.—Shuttleworth Scholarship: G. A Evans, B.A., and J. E. Rowbotham, B.A., B.Com. equal; *proxime accessit* James Stevenson, M.A.—Lcech Fellowship: A. E. Woodall, M.B., Ch.B.—Gilchrist Modern Language Studentship: Miss Minnie J. Bell.

Marlborough.—Foundation Scholarships: G. Chilton (Mr. Mullins, Upper Deal), R. H. Vawdrey (Mr. Lloyd, Winchfield), J. W. F. Rowe (Rev. E. F. Miller, Woburn Sands), J. H. Addenbrooke (Mr. Fernie, Yarlet Hall, Stafford), E. B. Kerr (Mr. Trollope, St. Albans), H. C. McNeil-Smith (Mr. Nicolls, Stevenage), T. A. H. Baynes, (Mr. Evans, Newbury), B. W. Batchelor (Mr. Duckworth, Weston-super-Mare), R. J. T. Wingfield (Mr. Easterfield, Monkton Combe), T. W. Kirkpatrick (Mr. Johns, Winchester), H. H. Sturt (Rev. W. R. Phillips, Lowestoft), E. L. Formby (Mr. Lee, Forest Row), S. Bell (Mr. Dunbar, Clifton), W. Bateman (Rev. J. W. Chippett, Matlock), and N. C. F. Nixon (Mr. Pearce, Ripley). Honourably mentioned: P. H. Stott (Mr. Thomas, Sedbergh), and E. W. Goldsmith (Mr. Stokoe, Ben Rhydding, Yorkshire).

Oxford University.—John Locke Scholarship in Mental Philosophy: R. Petrie, B.A., Jenkyns Exhibitioner (formerly Shynner Scholar) of Balliol, Assistant Lecturer in Philosophy in Manchester University.—Derby Scholarship: L. W. Hunter, B.A., formerly Scholar of New College.—Ireland Scholarship: Eric A. Barber, Scholar of New College.—Craven Scholarships: Arnold J. Toynbee, Scholar of Balliol; Edgar Lobel, Scholar of Balliol; and John D. Denniston, Scholar of New

College: *proxime accessit* Alexander P. Waterfield. Distinguished in the examination: Roderic M'Kenzie, Scholar of Trinity; Druce R. Brandt, Exhibitioner of Balliol; R. S. A. Palmer, Scholar of University.

Balliol.—Warner Exhibition and an Honorary Scholarship in Classics: T. J. Carnegie Brown, Commoner of Balliol, formerly of Cheltenham College.—Scholarships in Classics: D. H. Hartog, Dulwich College; F. Whittle, St. Paul's School Exhibitioner of Balliol College; E. F. W. Besly, Winchester College, Williams Exhibitioner of Balliol.—Domus Exhibitions in Classics: C. E. S. Dodd, Harrow School; S. H. Hewett, Downside School, Bath; R. H. Thornton, Marlborough College.—Williams Exhibition in Classics: A. Balmforth, Manchester Grammar School.—Scholarship in Mathematics: A. B. Mayne, Llandovery College. — Williams Exhibition in Mathematics: Herbert Steni, Christ's Hospital.—Brackenbury Scholarships in Modern History: G. C. H. Borley, University College, Reading, and V. H. Galbraith, of the University of Manchester.—Brackenbury Exhibition in Modern History: H. L. Watson, Harrow School, Williams Exhibitioner of Balliol.—Williams Exhibition in Modern History: E. T. H. Grove, Eton College. —Brackenbury Scholarship in Natural Science: C. W. B. Jeppe, Marlborough College.—Williams Exhibition in Natural Science: H. R. Raikes, Dulwich College.

Corpus Christi.—Mathematical Scholarship: Eric Noel Strong, Penarth County School.—Mathematical Exhibition: Aidan Chavasse (son of the Bishop of Liverpool, who is himself a member of the College), Liverpool College.—History Scholarship: Eric St. John Bamford, Stonyhurst College.

Hertford.—Open Scholarships in Classics, of £100 each for five years: Sidney L. Marwood, St. Paul's School; Frederick L. Mackenzie, United College, St. Andrews; Thomas L. Tanner, Dulwich College; and Harbin A. Lowe, Harrison College, Barbados.—Harrow Scholarship, of £100 for five years: Charles H. Abbott, Harrow School.—Lucy Scholarship, of £80 for four years: Harold G. Hawkins, Mill Hill School.—Meeke Scholarship, of £40 for four years: George T. de Blaby, Worcester Cathedral King's School.—Open Scholarship in Mathematics, of £100 for five years: Reuben H. Gregory, Christ's Hospital.—Exhibitions in Classics, of £30 each: Charles W. Stewart, St. Paul's School; Ian P. F. Campbell, Repton School; and Horace H. Watkins, Monmouth Grammar School.—Exhibitions in Mathematics, of £30: Wilfrid Steer, Charterhouse; and Stanley L. Price, College School, Lampeter.—Exhibition in History, of £30: Norman L. Mackie, University College, London.—Exhibition in Natural Science, of £50: Harold Atkinson, Bradford Grammar School.

Keble.—Classical Scholarships: J. P. Lloyd, St. John's School, Leatherhead, and G. Woodhams, Christ's Hospital.—Glenalmond Scholarship: D. Cooke, Trinity College, Glenalmond.—Classical Exhibitions: W. B. Hillis, Birkenhead, and J. C. Poole, Forest School and Keble College.—History Exhibitions: J. C. Ellis, Kilburn Grammar School, and H. G. Newman, Rossall School and Keble College.

Lincoln.—Classical Scholarships (£80 a year): Ronald B. Beckett, Woodbridge School and Lincoln College; Joseph Johnston, Trinity College, Dublin; and George Wood, Aberdeen University.—Classical Exhibitions (£30 a year): Charles M. K. Cade, Cheltenham College, and William R. Callander, St. Andrews University.—History Scholarships: £80, C. F. Battercombe, King's School, Canterbury; £60, H. H. Bellot, Exhibitioner at Lincoln.—History Exhibition of £30: G. F. Newton, Magdalen College School.—Tatham Scholarship (Modern History), open *pro hac vice*: P. G. Bestall, Kingswood School.

Magdalen.—Research Fellowship: John K. Fotheringham, M.A., D.Litt., Lecturer at King's College, London, formerly Postmaster of Merton, Senior Demy of Magdalen, and Student at the British School at Athens. Dr. Fotheringham undertakes to prepare a critical edition of Jerome's version of the Chronicle of Eusebius.—Senior Demyships: W. H. Scott-Wilson, B.A., Queen's; H. T. Tizard, B.A., Magdalen.—Open Exhibitions in Natural Science: L. J. Goldsworthy, Ripon Grammar School: Hugh S. George, Sexey's School, Bruton; L. H. D. Acland, Bath College.

Merton.—Chambers Postmastership (Mathematics): R. H. Ackerley, Eton College.

New College.—Mathematical Scholarship: E. R. Appleton, Royal Grammar School, Worcester.—Scholarship in Modern History: C. H. C. Osborne, Exhibitioner of New College.—Exhibition in Modern History: L. F. Urwick, Repton School.

Queen's.—Classical Scholarships: C. J. Norton, Rugby School; D. G. Davies, Llandovery College; T. S. Pitman, Whitgift School, Croydon, D. S. McKenzie, Haileybury College (Eglesfield open for this turn; Classics and History).—Mathematical Scholarship: E. G. Croker Poole, Rugby School.—Honorary Scholarships: S. W. Rawson, Hastings Exhibitioner of Queen's College, late of King Edward VII School, Sheffield; W. J. Lambert, Hastings Exhibitioner of Queen's College, late of Appleby School.—Hastings Exhibitions; Rupert Scott, Heath School, Halifax (Honorary Scholar) (Classics); Freeman P. Whiteley, Giggleswick School (Honorary Scholar) (Mathematics); William Tesh, Bradford School (Natural Science); Finlay McCance, St. Bees' School (Classics); Edwin A. Berrisford, King Edward VII School, Sheffield (Natural Science).—Southampton Exhibition: Leslie J. Barley, Hartley University College, Southampton (Natural Science). The Provost has appointed Ernest Barham Cobbald, of Ipswich School, to be Bible Clerk. Mr. Frederick Arthur Simpson, B.A., of Queen's College, has been elected to a Simcox Studentship for Research in Modern History at this College.

St. John's.—Open Scholarship in Natural Science: Harold Atkinson, Bradford Grammar School.

University.—Scholarship in Natural Science: E. T. Osborne, City of London School.

Wellington.—Scholarships of £80 on the Classical Side: D. A. R. Young (Mr. A. W. Roberts, Langley Place, St. Leonards) and G. C. K. Watson (Dr. Willams, Summerfields, Oxford).—Scholarship of £50 on the Modern Side, and Robert Henry Wentworth Hughes Scholarship: A. N. Gardiner (Mr. W. G. Reeve, Bigshotte Rayles, Wokingham).—Scholarship of £50 on the Modern Side: the Hon. G. C. Rowley (Mr. A. E. Murray, St. Clare, Walmer).—Scholarship of £50 on the Classical Side: the Hon. P. J. H. S. Ogilvy (Rev. W. H. Churchill, Stonehouse, Broadstairs).—Scholarships of £50 on the Modern Side: W. R. C. Penney (Mr. H. D. Thomas, Cramond Bridge, Midlothian) and A. C. Duff King's College Choir School, Cambridge).

Worcester, King's School.—King's Foundation Scholarships: James C. Rammell (King's School), Seiriol J. A. Evans (King's School and King's College Choir School, Cambridge), William Allured (King's School and Manchester Grammar School), William D. Battershill (King's School), Andrew Dering Baird (King's School), Athelstane A. T. Willoughby (Tredennyke, Worcester). House Scholarships: Frederick Matthews (Wychwood House School, Bournemouth), Basil F. W. Mogridge (Bewdley Grammar School), Salisbury Fynes Chester Davenport (Penrhyn Lodge, Westgate-on-Sea). Dean Forrest Scholarship: John H. Wiggin (Worcester Cathedral Choir School). Governor's Exhibition (tenable with a King's scholarship): A. A. T. Willoughby.

CONFÉRENCES FRANÇAISES.

Société Nationale des Professeurs de Français.

MANNING ET LA DÉMOCRATIE.

Par M. l'Abbé Margueré.

Le 27 novembre dernier, devant une salle comble, M. l'Abbé Margueré discourait sur "Manning et la Démocratie." Monseigneur Wallis devait présider cette conférence, mais s'est trouvé empêché au dernier moment.

C'est un grand privilège pour une nation, nous a tout d'abord dit le conférencier, d'avoir un homme choisi par Dieu et destiné, dans un rôle social, à accomplir le plus de bien possible. L'Allemagne, l'Amérique, la France ont été privilégiées à ce point de vue, et l'Angleterre ne devait pas rester en dessous des autres nations. Aussi eut-elle dans Manning celui que Dieu prédestinait à un rôle social au XIXe siècle.

C'est dans la célèbre école de Harrow, puis à Oxford, que Manning fit son éducation. C'est là qu'il recueillit les vrais principes et les traditions qui ont fait plus tard de lui un Anglais du meilleur monde, un *gentleman* accompli. De bonnes manières, se présentant bien, parlant avec mesure, discrétion, avec ce *self-control* si admiré des Anglais, d'un abord sévère, froid pour ceux qui ne le connaissaient pas, mais d'une sensibilité qui, quoique contenue, était toujours prête à jaillir: plus tard, avec l'âge, d'une grande affabilité, d'une courtoisie extrême à l'égard des dames, d'une tendresse remarquable envers les enfants, Manning, selon l'expression du *Daily News*, était "a very fine old gentleman."

Tel était celui qui débutait dans la vie, avec un avenir superbe devant lui, *clergyman* de l'Eglise anglicane, bien pourvu, marié à une Wilberforce, archidiacre de Chichester. Il serait intéressant d'établir un parallèle entre ce jeune homme et le Manning devenu prêtre catholique, austère, dur à lui-même, travaillant dans le quartier pauvre de Bayswater à ramener au bercail les brebis égarées, à convertir celles qui ne sont pas dans le giron de l'Eglise, fondant pour cela une congrégation d'hommes qui, sous la même devise, continuent son œuvre.

Mais le conférencier prend Manning à son entrée à l'archevêché de Westminster; c'est là, à proprement parler, que commence le rôle social de celui que l'on devait appeler "Le Cardinal des Ouvriers."

La première œuvre philanthropique qui devait attirer l'attention de Manning était bien celle qui avait pour but de réprimer l'ivrognerie dans le peuple. Il fonde à cet effet la fameuse "League of the Cross." Il préside lui-même la fête annuelle au "Crystal Palace," et, d'après un spectateur, ce n'était pas un spectacle banal que de voir cette belle figure de prélat romain émergeant de cette foule d'ouvriers aux visages durs et fatigués.

Cette ligue fondée, là ne devait pas s'arrêter le zèle de Manning. Un peu plus tard il fait partie d'une commission d'enquête chargée d'améliorer les logements des ouvriers dans le "East End." Toutes les œuvres qui s'occupent de charité, qui ont pour but l'amélioration des classes populaires, telles que la "Société pour la protection de l'enfance," etc., reçoivent son approbation et trouvent en lui un protecteur décidé, résolu.

Mais l'épisode le plus marquant de la vie sociale de Manning devait être son intervention dans la grève des *dockers*.

Les *dockers*, nous dit le conférencier, sont des parias, des marins ou soldats déserteurs, des malheureux de toute sorte, "the forlorn hope of the army of labour." Quelle était la condition de ces hommes? Ils gagnaient cinquante centimes par heure, étaient embauchés par des exploiteurs qui pratiquaient sur eux le "sweating system" et leur enlevaient presque tout leur salaire. Il fallait donc arriver à une entente entre les patrons et les ouvriers. Soixante centimes par heure, pas d'intermédiaires entre les ouvriers et les compagnies des *docks*, voilà quelles étaient les revendications de cette armée de travailleurs. Le 20 août 1889, la grève est déclarée, et le 25, 60,000 hommes, bannières en tête, chantant la Marseillaise, traversent la ville de l'Est à l'Ouest, et se rendent au Marble Arch, le lieu habituel de ces meetings. L'heure était critique, le danger imminent. Que faire? Fallait-il intervenir? Manning était de cet avis. Tout bien pesé, fort de sa conscience et de son devoir, Manning se rend chez le directeur des *docks*, M. Norwood. La première entrevue n'aboutit à rien. Mais, à sa sortie, Manning était acclamé par les ouvriers qui ne pouvaient s'empêcher de voir en lui un homme qui s'intéressait à leur cause. L'évêque de Londres, le *Lord Mayor* intervinrent. Rien n'y fit. Alors Manning réunit les chefs dans une pauvre petite école catholique du East End, et, avec son éloquence et cette chaleur pénétrante qui convainquait plus qu'elle n'enflammait, il réussit à leur faire accepter les réclamations des ouvriers.

C'était un triomphe pour le Cardinal et l'Eglise catholique en Angleterre. Aussi le retentissement en fut-il énorme, et de toutes parts affluèrent à l'Archevêché des félicitations pour celui qui avait sauvé Londres et rendu au commerce un si grand service.

Le rôle de Manning était fini, au point de vue social, nous a dit le conférencier. Mais Manning, qu'est-ce sinon l'Eglise catholique dans son rôle de médiatrice, de conciliatrice, cherchant à apaiser les querelles, à rapprocher les hommes divisés par les intérêts matériels? Et alors, dans des considérations d'un ordre plus élevé, M. l'Abbé nous montre qu'il n'y avait de salut pour la société moderne, fort malade, que par l'Eglise. "Soyez chrétiens, disait Léon XIII aux patrons; soyez chrétiens, disait-il aux ouvriers, et la fameuse question sociale se trouvera résolue." Effectivement il faut commencer par réformer l'ouvrier, le patron, le pauvre, le riche, et ainsi la société tout entière se trouvera réformée, et "La première pierre de la Réforme," a dit Le Play, "c'est le Décalogue."

Mais en face de l'incompatibilité d'humeur, et surtout de doctrine, entre l'Eglise et le Socialisme révolutionnaire, le conférencier entrevoit un avenir bien sombre, une lutte acharnée dont personne ne saurait prévoir ni le dénouement lointain ni les péripéties prochaines. Il croit que la religion sera impuissante à arrêter le flot montant des convoitises. Il ne croit pas non plus dans l'efficacité de la Science à rendre le monde heureux, et n'en veut, pour preuve convaincante, que cette "fameuse banqueroute de la Science" dont a parlé si éloquemment Brunetière dans une brochure célèbre. Mais alors qui sauvera la société moderne? Peut-être le sentiment national sera-t-il assez fort pour arrêter la marée montante et débordante du socialisme.

Comme qu'il en soit, faisons notre devoir, conclut le conférencier: allons au peuple, aidons-le dans ses besoins, relevons-le au point de vue moral, donnons-lui le sens du divin qu'il perd de plus en plus, faisons enfin œuvre d'apôtre laïque, puisque le peuple ne croit plus assez dans le prêtre, ni dans la divine influence du Christianisme.

THE BEGINNINGS OF MATHEMATICS.

Prof. Culverwell, in the course of a series of lectures on Education at Trinity College, Dublin, discoursed on "The Beginnings of Mathematics." In the previous lecture (he said) they had seen with what extreme difficulty even the versatile mind of the Greek emancipated itself from the bonds of habit. While the mind easily asserted its power to change or modify a mode of thought which it had consciously adopted, it seemed almost impossible for it to display a similar independence in regard to those mental habits which had unconsciously become part of the mental equipment of the race. Thus they saw that Plato, in his elaborate investigation of the nature of language, failed to recognize more than two parts of speech, or even the distinction between roots and terminations. That was the most striking illustration, yet others hardly less surprising might be found in the development of mathematics. As in language, so in mathematics; it was in the familiar subject, that of arithmetic, that the blindness appeared—that simplifications lying, as it were, under the very noses of the keenest intellects were not perceived. In rational geometry, on the other hand, the mind was from the first free from the trammels of custom, and its progress was direct and rapid. In that respect it bore to arithmetic a relation similar to that which formal logic bore to grammar. Logic, the new subject, sprang all but complete from the master mind of Aristotle. Mankind, no doubt, had reasoned before, but had not expressed reasoning in the form of a syllogism. Aristotle could see with equal ease all sides of the subject, because all were equally new, and he could see the reason of each step, because, being unfamiliar, he must examine it: he could not take it for granted. But grammar took many centuries to evolve, because it dealt with matter so familiar that the mind was satisfied without feeling the need for any reason. The historical development of geometry was, therefore, of the greatest use to the teacher, because it indicated to him the order which he should follow in developing the subject in the pupil's mind. To the teacher the historical development of geometry and of arithmetic were both most instructive, but for different reasons. In geometry they saw plainly marked out the gradual steps by which the mind naturally approached and developed the subject, while in arithmetic they saw even more plainly the deadening effect of mechanically acquired knowledge. The lecturer next dealt with the systems of numeration, and said that nearly all number systems, with one most remarkable exception, both ancient and modern, were based on the scale of 5, 10, or 20. Counting was usual with children, as with many primitive races, at the present day. It was common among Europeans in the Middle Ages, and to-day most Eastern nations used complicated finger symbolisms. The earliest kinds of notation always adopted the principle of repeating symbols. The Roman system of subtraction seen in IV appeared to be unique. The Greek system of using letters for units up to nine, other letters for tens up to ninety, and so on, was an immense advance, and went very near to the present far more convenient system. Strange to say, the principle of place-value appeared in the arithmetic of the earliest of known civilizations. It was to the Hindus that Europe owed the use of the present notation; they discovered the principle of place-value about 500 A.D., and from them it passed to the Arabs. In Italy the Hindu numerals were rejected by learned men, but they must have been widely used by the merchants, for in 1299 the Florentines were forbidden to use them in accounts, and were ordered to use either Roman numerals or to write the numbers in words. In Germany, France, and England the Hindu numerals were very rarely used till after the middle of the fifteenth century. Until the Saracens introduced the Greek methods into Europe the geometry of Europe in the Middle Ages seemed to have been as slight and as erroneous as that of the Egyptians in 600 B.C. The monks scarcely went beyond the definitions and rules which the Romans, ignoring the Greek geometry, had adopted from the Egyptians. In the twelfth century, however, all the most important Greek mathematical books were translated from the Arabic into Latin. The Romans, strange to say, adopted in their public surveys these incorrect methods, though the Greek geometry had been established for centuries. Hindu problems indicated not only that mathematics was regarded as a sweet and gentle art, but also that women had attained a high intellectual standard.

THE STATE AND THE UNIVERSITIES.

CONDITIONS AND PROSPECTS.

It is inevitable (says the *Morning Post*) that, in the course of the next few years, University education should become the subject of serious consideration by English Governments. The present relation of the State to the Universities is a very unstable one. The development of the younger English Universities, like Birmingham, Manchester, Leeds, Sheffield, and (latest of all) Bristol, has been made possible almost entirely by the generosity of public-spirited benefactors, and hardly at all by the financial assistance offered by public authorities. This has had, in some ways, very great advantages. It has made it certain that University education would not be undertaken until there was a genuine local demand for it. It has evoked civic enthusiasm and generosity which is beyond all praise, and which is an invaluable educational asset. It has given occasion for men of business and men of theory to learn each others' minds in working together for a common cause. On the other hand, the English policy of relying mainly on private benefaction to finance University education, though probably justified in the incipient stages of the movement as a guarantee of its spontaneity and genuineness, has grave drawbacks when once Universities have faced the great possibilities before them and stand firmly on their feet. For Universities which have proved their worth to have still to rely to such an overwhelming extent upon donations from private benefactions is to court

Certain Grave Dangers.

In the first place, the work of the newer English Universities is increasing rapidly, and with the growth of secondary education must continue to increase. The last report shows that the number of students at the eighteen Universities and University colleges which participated in the Treasury grant of £100,000 totalled about 22,000. This figure does not pretend to be accurate: it includes evening as well as day students; it includes students whose attendance at University course is probably very irregular; it excludes those at Oxford and Cambridge as well as those at all Scotch Universities (except the small University College of Dundee). Compared with the 51,510 matriculated students stated to be attending German Universities in the last summer semester, it is small. But it has grown rapidly: at Liverpool and Manchester alone the number of day students increased between 1905 and 1907 by over two hundred, and every growth means that more money is wanted to defray the cost of teaching. Can public generosity be relied upon to provide the necessary funds?

In the second place, even when private benefactions are forthcoming, they are sometimes capricious and one-sided in their operation. Certain subjects of a practical nature tend to win the support of wealthy commercial men and others of a less utilitarian character tend to be neglected. There are, of course, brilliant exceptions. But, on the whole, it is true that, difficult as it is to raise money for any object, it is ten times more difficult to raise it for an object which has no direct practical bearing. Though one may not agree with the statement sometimes made by professors on the "arts side" of some modern Universities, that they are in danger of becoming technological institutes, yet it is difficult to resist the conclusion that the policy of relying almost entirely on private munificence tends to result in certain Universities in the neglect of subjects, such as history, economics, literature, which private munificence does not always consider to be "any use." It is, of course, fit and proper that captains of industry whose trades are benefited by the presence of a University giving technological instruction should help to pay for it. It is not right that the study of other subjects which are of national, not local, importance should languish because such persons do not see their way to supporting them.

In the third place, Universities will in the future have to reckon with the demands made upon them by classes which hitherto have had little to do with University education. One of the most remarkable educational movements of the last two years has been the establishment of classes for the higher education of workpeople in historical and literary subjects in which Universities like Manchester, Leeds, and several others are playing a prominent part with conspicuous success. Such a movement imposes an increased financial burden upon Universities; this burden can hardly be defrayed out of private generosity; nor, perhaps, would workpeople welcome the movement if it were.

Need for a New Policy.

The truth is that the State must entirely revise the policy which it has adopted towards Universities. First of all, it must greatly increase the financial aid given to them. At the present day the English Government is disgracefully backward in this matter. The Treasury grant, begun at £15,000 in 1889 and increased to £54,000 in 1904, has at length been dragged up to £100,000 per annum. In addition to this, the Board of Education, the Board of Agriculture, and Local Authorities make contributions which between them probably amount to about another £100,000, though of this sum a great deal is given in consideration of extra work done by Universities, for example, in training teachers, and therefore cannot be regarded as a net addition to their income. Contrast with this niggardliness the position of German and American Universities. The total income of all German Universities is probably about one and a half million pounds, of which about one million is contributed from public funds. The total income of all American Universities was in the year 1897 over four and a half million pounds, of which the States supplied over £900,000. It is probable, therefore, that public bodies spend at least four times as much in encouraging University education as is spent by public bodies in England. In addition to increasing the grant to at least £300,000 in the near future, the Government might well consider the desirability of making other alterations. In the first place, it appears to be an official rule that the Treasury grant shall not exceed one-quarter of the income derived by Universities from local sources. The object of this rule is, presumably, to encourage local effort. But is it really a wise one? As has been pointed out above, the generosity of wealthy men is somewhat capricious in the subjects which it selects for its support; it endows some abundantly and neglects others altogether. Surely it would be preferable for the Treasury to take this into account, to decline to support subjects which, because they are of great benefit to the industries of a locality, may safely be left to local effort, and to assist much more liberally others which have less chance of finding local support. Moreover, it would perhaps be wise in making the grant to earmark part of it for specific purposes, or at least to suggest that part of it should be used for specific purposes which have hitherto not received sufficient attention. One matter, for example, which needs attention is the scale of salaries paid by Universities to their junior staffs. At present they are in some cases deplorably low. The last report on Universities and University colleges shows that £150 to £200 is commonly the sum paid to assistants and lecturers. Doubtless this would not be too low if the prospects of advancement in the profession were better. But, since the number of professorships in any subject is invariably much smaller than the number of lecturers and assistants, the latter have to choose between leaving the profession or never getting more than £200 a year. The result is not favourable to good work, and it would be most desirable that the body administering State grants to Universities and University Colleges should bring pressure to bear to get this matter, which is vital to the efficiency of education, readjusted on wise lines. One step would be to create intermediate posts, assistant professorships, to which the junior members of University staffs could aspire. But, whether this is done or not, it is essential that the financial aid given by the State to Universities should be largely increased.

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General Scholastic Advertisements (Colleges, Schools, Classes, Tuition, &c.), 3s. 6d. for 6 lines, or 4s. 6d. the inch.

Situations Vacant and Wanted—30 words or under, 2s.; each additional 10 words, 6d. (For 1s. extra, Replies may be addressed to the Publishing Office, and will be forwarded post free.)

CURRENT EVENTS.

Fixtures.

THE Half-Yearly General Meeting of the members of the College of Preceptors will take place on Saturday, January 22.

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THE annual Conference of London Teachers (Elementary, Secondary, and Technical) will be held at the Birkbeck College on January 6, 7, and 8: 11 to 1 and 2 to 4 each day.

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THE Annual Meeting of the Mathematical Association will be held at Westminster School on January 12, at 10.30 a.m.

A Joint Meeting of the Mathematical Association and the Association of Public School Science Masters will be held at the same place and on same day, at 3 p.m.

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THE Annual Meeting of the Association of Public School Science Masters will be held at Westminster School on January 13. Members of the Mathematical Association are invited to attend.

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THE Annual General Meeting of the English Association will be held at University College, London, on January 14 and 15.

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THE third meeting of the International Home Education Congress will be held in connexion with the Brussels Exhibition, August 21 to 25, 1910. Five Sections: the Study of Childhood; the Education of Children; Abnormal Children; Various Subjects relating to Childhood; Literature. Subscription: 10 fr. (8s. 6d.). General Secretary's office: 44 Rue Rubens, Brussels. Hon. Sec. to English Central Committee: Miss Kyle, Highbury Hill High School, Highbury, N.

Honours.

THE University of Oxford has conferred the honorary degree of M.A. upon Mr. J. F. Blumhardt, Lecturer in Bengali; Mr. J. E. Bridges, Lecturer in Burmese; Mr. W. Hory, Lecturer in Hindustani; and Mr. J. M. Gubbins, C.M.G., Lecturer in Japanese.

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THE University of Cambridge has conferred the honorary degree of Sc.D. upon Mark Aurel Stein.

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THE University of Durham has conferred the honorary degree of D.C.L. upon Mr. James Bell Simpson, of the Institute of Mining Engineers, a member of the Council of the Armstrong College.

* * *

THE University of Liverpool has conferred the honorary degree of LL.D. upon Mr. Robert Gladstone, Chairman of the Mersey Docks and Harbour Board, a nephew of the late Mr. W. E. Gladstone. Dr. Gladstone was for twenty years Hon. Treasurer of Liverpool University College.

Sir John Brunner, Bart., and Mr. J. W. Alsop have been elected Pro-Chancellors of the University of Liverpool, in succession to the late Sir Edward Lawrence and to Dr. E. K. Muspratt, retired.

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The Duke of Devonshire has been elected Chancellor of the University of Leeds, in succession to the late Marquis of Ripon.

* * *

The University of Wales has conferred the following honorary degrees:—

LL.D.: Sir Samuel T. Evans, K.C., M.P., Solicitor-General.
D.Litt.: Prof. Kuno Meyer.
M.A.: Mr. John Ballinger, Librarian of the National Library of Wales; and the Rev. Evan Rees (Dyfed), Archdruid of Wales.

* * *

Dr. M. J. M. Hill, Sc.D., F.R.S., Vice-Chancellor of the University of London and Astor Professor of Mathematics in University College, has been elected an Honorary Fellow of Peterhouse, Cambridge, of which he was formerly a Fellow.

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Mr. C. M. Powell, M.A., formerly Scholar of Corpus Christi College, has been elected an Honorary Fellow of the College.

* * *

Principal Hadow, Armstrong College, formerly Fellow and Tutor of Worcester College, Oxford, has been elected an Honorary Fellow of Worcester.

* * *

A committee has been formed to raise a fund for a portrait of Mr. A. E. Shipley, F.R.S., Lecturer in Natural Science at Christ's College, Cambridge, and University Reader in Zoology, in recognition of his services to the University and to his College as well as to Zoological teaching and research.

* * *

The Council of Armstrong College, Newcastle, have unanimously resolved that the memory of the late Mr. Joseph Cowen be honoured by attaching his name to the Chair of English Language and Literature in the College.

* * *

A committee has been formed to raise a fund for the erection of a statue in the University College of Wales, Aberystwyth, of Thomas Charles Edwards, first Principal of the College, the first of the University Colleges of Wales.

* * *

It is proposed to establish a memorial of the late Mr. A. H. Beesly in the form of a Library of English Literature, to be placed in a special section of the Memorial Reading Room at Marlborough College, together with a portrait of Mr. Beesly. Contributions received by Mr. F. E. Thompson, 16 Primrose Hill Road, London, N.W.; Mr. H. Richardson, Sigglesthorne, Marlborough; or Mr. C. Llewelyn Davies, 14 Barton Street, Westminster, S.W.

Endowments and Benefactions.

Mr. Otto Beit has given £215,000 for the endowment of thirty Medical Research Fellowships, £250 a year each, tenable for three (or at most four) years, by "any man or woman of European descent, graduate of any approved University within the British Empire." First election in March next. Correspondence on the question of candidates is to be addressed to 35 Clarges Street, Piccadilly. Office (temporary): Seymour House, Waterloo Place, S.W.

Mr. William De Morgan has presented to the London University Library a collection of books, pamphlets, and MSS. formerly belonging to his father, Mr. Augustus De Morgan, who was upwards of thirty years Professor of Mathematics in University College.

* * *

The late Dr. Charles Graham, D.Sc. Lond., formerly Professor of Chemical Technology in University College, London, has left his residuary estate (after certain legacies) to the College for Research in the School of Advanced Medical Studies for the Prevention and Cure of Human Diseases. The estimate is £35,000.

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Emeritus-Professor Purdie has supplemented the existing Endowment Fund of the Purdie Chemical Research Laboratory in the University of St. Andrews by a further gift of £2,000.

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Lord Powis has signified his intention of not continuing to give the Powis Medal (Cambridge University) after the current academical year.

* * *

Mr. J. Prichard Jones, of London and Newborough, has promised £12,000 (in addition to a previous £3,000) to the Building Fund of University College, Bangor—to cover the cost of the great hall.

* * *

The newly formed Girls' College Association, Ltd., has already received promises of some £15,000 towards the £20,000 required to establish a school for thirty daughters of Nonconformists (similar to the Leys School for boys) at Chislehurst.

* * *

Donegal County Council has established six scholarships of £45 a year for three years (eighteen scholarships in the aggregate), open to boys and girls alike. Four of the six are to be tenable only in the National University or in a college thereof, the other two in any University or college the candidates may select.

* * *

The Governors of Pickering Grammar School have established a University Scholarship of £50 a year for three years.

Scholarships and Prizes.

Balliol College, Oxford, has decided to offer this year an exhibition of £80 a year for two years for competition among students recommended by the leading trade unions operating in Newcastle, provided the income of the successful candidate be supplemented from external sources.

* * *

St. John's Hall, Highbury, offers for competition, on March 31, Entrance Scholarships of £50 a year, and Entrance Exhibitions of £30 or £40 a year, for two or three years. Apply to the Principal by March 10.

* * *

Harrow School offers eleven or twelve entrance scholarships, open to all boys born in or after the year 1896 and not members of the school. Apply to the Head Master's Secretary.

Appointments and Vacancies.

Mr. W. Bateson, F.R.S., has resigned the Professorship of Biology in Cambridge University, on his appointment to the Directorship of the John Innes Horticultural Institution, to be established at Merton in Surrey.

Mr. W. Martin Geldart, M.A., Fellow of Trinity College and Reader in English Law, has been appointed Vinerian Professor of English Law, in the University of Oxford, in succession to Prof. Dicey.

* * *

Mr. Walter Durnford, M.A., has been appointed Vice-Provost of King's College, Cambridge, in room of Mr. Frederick Whitting, M.A., resigned.

* * *

Mr. W. M. Lindsay, M.A. Oxon., Professor of Humanity in the University of St. Andrews, has been appointed Sandars Reader in Bibliography in Cambridge University for 1910.

* * *

Dr. Edward B. Tylor, F.R.S., D.C.L., has resigned the Professorship of Anthropology in the University of Oxford.

* * *

Mr. Carl Marstrander, of the University of Christiania, has been appointed Professor of Celtic and Comparative Philology in the School of Irish Learning, Dublin.

* * *

In the University of London, University College, Mr. F. Jackson and Miss M. Pick have been appointed Assistants in Pure Mathematics; and Mr. P. F. Everitt, Honorary Assistant in Applied Mathematics.

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Dr. Henry T. Bovey, F.R.S., has resigned the Rectorship of the Imperial College of Science and Technology, owing (it is understood) to the condition of his health.

* * *

In Manchester University, Mr. H. F. Coward, D.Sc., Demonstrator in Chemistry, has been appointed Lecturer in Chemistry in the Faculty of Technology and Chief Lecturer in Chemistry at the Municipal School of Technology; and Mr. Arthur J. M. Bentley, Lecturer in Tropical Diseases.

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In the University of Liverpool three new Lectureships have been instituted: Mr. Robert Jones, Ch.M.Liv., F.R.C.S.Ed., has been appointed Lecturer in Orthopædic Surgery; Dr. H. E. Roaf, Lecturer in Physiology; and Mr. Owen T. Williams, M.B. Lond., M.R.C.P. Lond., Lecturer in Pharmacology.

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In Leeds University, Miss Doris Gunnell, B.A. Leeds, D. ès L. Paris, Assistant Lecturer in French Language and Literature, University College, Cardiff, has been appointed Assistant Lecturer in French in Leeds University; and Miss E. J. Welsford, F.L.S., Steward of the Botany Department, Royal Holloway College, Laboratory Steward and Research Assistant in the Department of Botany. Mr. Monahan has been appointed Assistant Lecturer in the Day Training College.

* * *

In Sheffield University, Mr. Thomas Loveday, M.A., has been appointed Lecturer in Philosophy; Dr. James Kenner, Research Assistant in Chemistry; Mr. Graham Simpson, F.R.C.S., Lecturer in Operative Surgery; and Mr. A. B. Coward, B.Eng., Demonstrator in Engineering.

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In the University College of Wales, Aberystwyth, Prof. Marshall has been appointed Head of the Greek Department, in room of Prof. Roberts, resigned; and Mr. Jenkin Jones, Lecturer in Philosophy, has been appointed Professor of Political Science.

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In University College, Dublin, Dr. A. W. Conway, M.A., D.Sc., Professor of Mathematical Physics, has been appointed Registrar; Mr. J. Lloyd-Jones, M.A., Lecturer in Welsh; and Mrs. M. M. Macken, M.A., Lecturer in German.

Mr. C. R. A. Howden, M.A., Lecturer on the Law of Landlord and Tenant and Assistant to the Professor of Scots Law, has been appointed Lecturer in International Private Law, in the University of Edinburgh.

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Mr. Bernard N. Wale, B.Sc. Agric., Lond., F.H.A.S., Lecturer, has been appointed Principal, of the Seale-Hayne Agricultural College.

* * *

The Rev. L. A. Phillips, M.A. Oxon., Rector of Sibstone, formerly Fellow and Dean of Pembroke College, Oxford, has been appointed Principal of Lichfield Theological College.

* * *

Miss Christine M. E. Burrows, Vice-Principal and Modern History Tutor, has been elected Principal, of St. Hilda's Hall, Oxford, in succession to her mother, Mrs. Burrows, resigned.

* * *

Mr. Eric W. Sutton, B.A., Senior Scholar of St. John's College, Oxford, has been appointed Lecturer in Philosophy at Worcester College.

* * *

Miss Dorothy Chapman, M.A. St. Andr., Carnegie Research Scholar, has been appointed Warden of the Women Students and of University Hall at the University College of North Wales.

* * *

The Rev. Darwell Stone, D.D., one of the resident librarians, has been appointed Principal, of the Pusey House, Oxford, in room of the Rev. V. S. S. Coles, resigned.

* * *

Mr. H. M. Hallsworth, M.A., B.Sc. Manc., Jevons Student in Economics, formerly Science Master, P.-T. Centre, Sheffield, has been appointed Assistant Lecturer in Economics in the University of Manchester.

* * *

Mr. H. J. C. Kinghorn, M.A., assistant master, George Watson's Boys' College, Edinburgh, has been appointed Principal of the new Training College for Teachers at Kalimpong, Northern India.

* * *

The Rev. H. E. Edwards, B.A. Cantab., Senior Curate of Bradford Parish Church, has been appointed Sub-Warden of the S.P.C.K. Training College for Lay Workers.

* * *

Miss S. E. Gadsby, Mistress of the Preparatory Department, St. Bride's School, Helensburgh, has been appointed Head Mistress of the Preparatory School and Kindergarten in connexion with the Day Training College, University College, Bangor, in room of Miss Kelley, resigned (going to India).

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Mr. John Edward King, M.A. Oxon., Head Master of Bedford Grammar School, has been appointed Head Master of Clifton. He is an old Cliftonian.

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Mr. Henry Durham, F.C.S., F.P.S.L., has resigned the Head Science Mastership, City of London School, after fifty years' service.

* * *

Mr. A. G. Warren, B.Sc. Eng., Lond., has been appointed Assistant in the Electrical Engineering Department of the East London College.

* * *

Miss G. J. M'Crea, assistant mistress King Edward's Girls' High School, Birmingham, has been appointed Head Mistress of the Girls' High School, Stafford.

Mr. W. Bonavia-Hunt, M.A. Oxon., second master, has has been appointed Head Master, of the Kilburn Grammar School, London.

* * *

Mr. James Lang, B.A. Oxon, of the Glasgow Academy, has been appointed Master of English and History at Grey College, Bloemfontein.

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The Rev. R. F. Elwyn, M.A. Cantab., Assistant Master, Felsted School, has been appointed Head Master of Rochester Cathedral King's School.

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The Rev. W. Parker, M.A. Trin. Coll., Dub., and R.U.I., late Warden of St. Columba's College, Rathfarnham, has been appointed an assistant master at Tonbridge School.

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Mr. W. F. Beard, M.A. Cantab., M.A. Melb., Senior Mathematical Master, Melbourne Grammar School, has been appointed Senior Mathematical Master at Wakefield Grammar School.

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Mr. J. L. John, B.Sc., Senior Science Master, Beaumaris Grammar School, has been appointed Assistant Master at Chesterfield Grammar School.

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Mr. W. A. P. Mason, M.A. Oxon., Assistant Master, Merchant Taylors School, Crosby, and Mr. H. Naylor, B.A. Lond., Second Master, Steyning School, have been appointed assistant masters in the Perse School, Cambridge.

* * *

Mr. H. H. Hutchinson, Mathematical and Science Master, Lord Williams's School, Thame, has been appointed assistant master at Colston's School, Bristol.

Literary Items.

The *Classical Review* and the *Classical Quarterly* (the *Times* is informed) have become the property of the Classical Association, which has appointed, as a Board of Management of the two journals, Dr. S. H. Butcher (Chairman), Prof. R. S. Conway (Treasurer), Mr. E. Harrison, Prof. Haverfield, Prof. Mackail, Prof. Ridgeway, and a member to be nominated by the Oxford Philological Society.

* * *

The Oxford University Press will publish presently a new "School Economic Atlas," by J. G. Bartholomew, F.R.G.S., with an introduction by L. W. Lyde, M.A., Professor of Economic Geography in University College, London. Sixty-four maps, plainly and vividly coloured.

* * *

Mr. Fisher Unwin held a very interesting exhibition of his publications, representing the most varied branches of literary effort, in Clifford's Inn Hall, Fleet Street, December 13–21. A special feature was a large collection of original drawings and designs by numerous well known artists, many of which had been reproduced in the books on view.

* * *

Messrs. A. & C. Black are publishing a "Primer of Statistics," by W. Palin Elderton and Ethel Elderton, with preface by Sir Francis Galton. It will explain the terms and methods of modern statistics without mathematical aid and in simple form.

* * *

Among Messrs. Rivingtons' January announcements we note "Elementary Latin Prose Exercises," by Dr. Hillard and Mr. Botting, of St. Paul's, and extensions of series already begun; and a volume on "The Great Rebellion" by Mr. Arthur Hassall.

* * *

The January number of the *Cornhill Magazine* is the Jubilee number, special and enlarged. The special part contains in effect the history of the magazine's career, "recounted by those who are best qualified to tell the story, each in his own genre"—Lady Ritchie, Mr. Thomas Hardy, Mr. E. T. Cook, Mr. Stanley Weyman, Mr. W. E. Norris, &c. A number of exceptional interest.

* * *

The Christmas number of *The World's Work* is varied, instructive, and liberally illustrated. It is claimed that the value of the magazine "as an educational instrument for use in the higher classes of schools is now gaining recognition from the foremost educational authorities of to-day."

* * *

The *Musical Times*, on entering on a new volume, proposes to devote increased attention to "critical, historical, and educational matter" of wide interest, while still keeping abreast of the great developments of modern music.

* * *

The *Local Government Review* (with which is incorporated *The Councils' Journal*) makes a varied and excellent first appearance (November). Messrs. Simpkin, Marshall, & Co. are the publishers (1s. net).

* * *

Mr. T. Sharper Knowlson will follow up his successful series of lectures on "Journalism" by a course of ten lectures on "Authorship: its Aims, Methods, and Rewards," on Fridays at 7.30, commencing January 14, at the Central Y.M.C.A., 346 Strand. Apply to Mr. John W. Hobday, same address.

General.

Mr. Balfour delivered the Romanes Lecture at Oxford (November 24), his subject being "Questionings on Criticism and Beauty."

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Dr. G. C. Bourne, M.A., D.Sc., Linacre Professor of Comparative Anatomy, Oxford, delivered the Herbert Spencer Lecture (December 2). Subject: "Herbert Spencer and Animal Evolution."

* * *

Prof. Bateson, F.R.S., Cambridge University, delivered the Huxley Lecture at Birmingham University (December 1). Subject: "Mendelian Heredity."

* * *

The new Botanical Laboratories at University College, London, were formally opened (December 17) by Dr. D. H. Scott, F.R.S.

* * *

The new Carnegie Physics Laboratory, University College, Dundee, was formally opened by Prof. Sir Joseph J. Thomson, of Cambridge University (November 26).

* * *

The Latin Play at Westminster this year was the "Adelphi" of Terence. The performance was a great success, and the Epilogue reviewing current events of the year was both witty and impartial.

* * *

A memorial in favour of "extending the Parliamentary Franchise to duly qualified women," signed by 2,110 assistant mistresses in 384 public and private secondary girls' schools, has been forwarded to the Prime Minister and to all members of Parliament.

OPEN COURT.

Thay haif said . . .
Quhat say thay?—Lat thame say!

COLLEGE-BRED WOMEN.

By Evelyn M. Wood-Lovejoy, Vermont.

[From the *School Journal*.]

Why are women demanding a higher education? Why do girl graduates of high schools forgo pleasure, social prestige, and even the necessaries of life that, along with their brothers, they may secure the culture and wide knowledge of affairs which can best be obtained in the college or University?

It is no passing whim of the feminine mind, but the result of serious thinking and of sound common sense. If this age is characterized by one thing more than another, it is as the age of the emancipation of women—emancipation not, as some may suppose, from the tyranny of man, but chiefly from the petty prejudices and social distinctions with which she has herself hampered her usefulness and dwarfed her development.

New conditions are responsible for the "new woman." Has any one thought to inquire if we have a new man? Most assuredly he is here, whether recognized or not. It is the change in him which is in a large degree responsible for the change in her. He is no longer satisfied with a pretty plaything in his home for a wife, nor with an ill informed girl for a sister, however sweet she may be. Yet, at the same time, he is somewhat shy of the highly educated woman if she chance to be other than his sister.

In a recent educational association a note of warning was given regarding the growing distaste for domestic and maternal duties evinced by women holding college degrees. "Women," it was said, "do not like to cramp their career by assuming such responsibilities, and the race must finally die out as a result of higher education." It is difficult to obtain statistics to prove or disprove this assertion. Suppose it is true, then to be forewarned is to take the necessary precautions against such a catastrophe. Possibly it might not be a catastrophe, but the looked-for millennium, and the last man and the last woman might be a new Adam and Eve, perfect as wise, and the progenitors of a new race like unto themselves. Race extinction seems almost too absurd to be entertained, yet it may be well to consider some means of preventing even a tendency toward the dying-out process.

Will not co-education in colleges and Universities serve to give young men and young women a better understanding of each other, and to stimulate comradeship, mutual confidence, and respect, which are the foundation of model marriages? Four years or more of comparative isolation of the sexes must necessarily result in a certain strangeness and a doubtfulness regarding the disposition and tastes of each other. Harry and Mabel parted outside academic walls. Harry Brown, Ph.D., and Mabel Howard, Ph.D., meet again, after six or seven years, in a very busy, practical world. Dr. Brown looks upon Dr. Howard as a curious anthropological specimen, and is not sure of the class to which she should be referred. Dr. Howard bows respectfully, and informs him that she also is a candidate for the position which he is seeking. It does not seem to occur to either that the one position could maintain two learned doctors, a possibility often and naturally suggested in co-educational institutions.

Granted that some highly educated women choose single life as offering a more ambitious career, is not that true of men? If domestic happiness is often sacrificed by the one, that they may have time and means to devote to a certain end believed to be more valuable, no less often is it by the other. What better neutralizing agent for this temptation to celibacy than co-education? For what is present to the senses daily is more effective and persuasive than imagination or fancy.

While advocating co-education for the majority of men and women, it does not follow that one need to insist on exactly the same curriculum for both. Sociology for both, but more of political economy for men. Physiology and hygiene for both, but special courses for women, given by regular physicians, who have the experience and knowledge to teach with authority. The woman graduate of a University should be well informed regarding her duty to her own physical and moral being. She will then be prepared and willing to assume the responsibilities of wifehood and motherhood. If she nourishes and rears even three healthy, normal children, she will have done more for the race than the mother of ten children, half of whom die in infancy through the parent's ignorance of natural laws, and the other half live to be a burden to themselves and the world.

College Education and Matrimony.

How is one to know whether the college-bred woman remains single from choice or not? She cannot be expected to reveal the truth even to her friends, to say nothing of the public. She is not the kind of woman to fish for a husband. She is independent, generally commanding a good salary in a responsible position if she belongs to the wage-earners. She doesn't "sigh and look down," and so imply that she is ready for a flirtation, if for nothing more serious. She takes life in a straightforward, earnest way, and must be won in the same way. If any man admires such a woman, and wishes a more intimate acquaintance, let him go ahead. Should he fall in love with her and be refused, he will have more self-respect and happiness in the end than in a successful suit to a society butterfly. But he may win, and he will find his prize no less womanly and tender because of her wider training.

Again, the motive for non-maternity is not invariably a desire for a larger career, nor is it confined to women who are college graduates. A young wife wishes to retain her freshness as long as she may, and to have time to share with her husband the activities of business and pleasure. She has not failed to see that often the self-sacrificing mother is not appreciated. The husband seems half ashamed of his weary-faced wife, and amuses himself with gayer and younger company. Instead of staying at home in the evening and lightening her cares by hand and sympathy, he finds his recreation at the club or theatre. This young wife thinks she will ward off the evil day by denying herself the joys of motherhood, since such a heavy mortgage must be paid for their possession. Can you blame her? If so, do not charge it to the account of higher education.

We need not less, but more, of this higher training for both men and women, such as will inspire them with nobler ideals of life, conforming less to the sensual, and finding their best expression and truest beauty in a soul union of the sexes. Then the question of preventing the extinction of the race will cease to be a problem, for man will be sacred and woman will be sacred, sin will hide away abashed, disease will be a rare intruder, and wrinkled age will be loved and cherished no less than fair youth.

HEAD MASTERS IN CONFERENCE.

The Annual Conference of Head Masters was held at the Leys School, Cambridge, on December 22 and 23, the Rev. Dr. Barber (Leys) in the chair.

After the genial Presidential address, Dr. Gray (Bradfield) moved:

That this Conference welcomes the development of the Public Schools' League for Imperial land settlement in the oversea Dominions, and recommends to the governing bodies of the schools represented in the Conference the desirability of helping by annual financial grants the establishment of a central office in London for the permanent work of the League.

Dr. Upcott (Christ's Hospital) seconded. After some discussion, Dr. Field (Radley) moved an amendment deleting the words "the desirability of helping by annual financial grants." The amendment was carried by 19 votes to 13, and the resolution as amended was adopted.

The Rev. W. Madeley (Woodbridge) moved:

That the Conference is of opinion that a Sub-Committee be appointed to hold further conference with the officials of the Joint Board of Oxford and Cambridge with reference to the examinations for higher, lower, and school certificates.

The Rev. Canon Swallow (Chigwell) seconded. Mr. F. J. R. Hendy (Bromsgrove) moved that it be an instruction to the Sub-Committee for Public Examinations to confer with the officials of the Joint Board with regard to the questions raised at the Conference held on November 9, and especially to impress upon them the importance of preventing variations in the standard of their examinations from year to year. The Rev. H. A. P. Sawyer (St. Bees) seconded.

A long and somewhat technical discussion followed; and eventually the amendment was lost and the resolution carried.

Mr. C. E. Brownrigg (Magdalen College School) moved:

That this Conference considers that, with regard to the relations of

public schools curricula to the Universities of Oxford and Cambridge, fuller recognition of English is desirable in the University examinations for admission.

Mr. Nowell Smith (Sherborne) seconded. After some discussion, Dr. Upcott moved as an amendment: "That this Conference considers, with regard to the relations of public schools curricula to the Universities of Oxford and Cambridge, that the University examinations for admission in their present form are useless, and ought to be abolished." The President could not accept this as an amendment, and suggested that it should be brought forward as a separate resolution. Eventually, the motion was carried by 19 votes to 15.

On the second day, the question of the increasing congestion of scholarship examinations at the Universities in December was referred to the Universities' Joint Committee for consideration and report. On the report of the Curriculum Committee, the principle laid down in it that a boy should not be allowed to begin Greek until he had securely laid the foundations of Latin and French, and received systematic training in English, was discussed and approved. A motion declaring it to be essential to give such a definite position to English and French in the entrance scholarship examinations that these subjects may not be sacrificed to premature study of Greek was carried by 32 votes to 1. It was decided to hold, early next year, a special meeting of such head masters as were in favour of the recommendations of the Committee, to take steps to give practical effect in their own schools to those recommendations.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, on December 18. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage Smith, Mr. Bain, Rev. J. O. Bevan, Rev. J. B. Blomfield, Mr. Brown, Mr. E. A. Butler, Mr. Charles, Prof. Dixon, Mr. Hawe, Mr. Holland, Dr. Maples, Mr. Marx, Mr. Pendlebury, Mr. Pinches, Miss Punnett, Rev. Dr. Scott, Mr. Starbuck, Mr. Storr, and Dr. Wormell.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Christmas Certificate and Lower Forms Examinations had been held on December 7 to 10, and that the number of entries was about 6,000. For the Christmas Examination of Teachers for the College Diplomas the number of entries was about 500.

The Diploma of Licentiate was granted to Mr. S. C. Rogers, who had satisfied the prescribed conditions.

A letter from the Dean was read expressing his intention to retire at the end of the current year of office. The following resolution was adopted unanimously:—"That the Council cannot receive the letter definitely announcing the retirement of Mr. Eve from the Deanship without expressing their heartfelt thanks for the great services he has rendered to the College of Preceptors for more than twenty-six years, and their sincere appreciation of the efforts he has made for promoting its usefulness and welfare during the whole of that period."

A Report of the Special Committee on the work of the College was adopted.

The draft Report of the Council to the General Meeting was considered, and was referred to the President, Vice-Presidents, and Dean for final revision.

Mr. H. P. Johnston, A.C.P., 8 Avenue Terrace, Newport, Salop, was admitted to the privileges of membership under Section II, Clause 5, of the By-Laws.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—Bevan's Egypt and the Egyptians, and The Birth and Growth of Toleration and other Essays.

By Dr. A. E. C. DICKINSON.—Cook's First Book in Old English; Garnett's Cynewulf's Elene, and other Poems; Headlam's Selections from the British Satirists; Kent's Cynewulf's Elene; Wyatt's Beowulf.

By BLACKIE & SON.—Hooper's Souvestre's Le Chevrier de Lorraine; Rouse's A Greek Boy at Home; Sayers and Tomes's Practical Domestic and Household Arithmetic.

By the CAMBRIDGE UNIVERSITY PRESS.—Sleeman's Herodotus I.

By MACMILLAN & CO.—A Latin Anthology ("Golden Treasury Series").

By METHUEN & CO.—Asman's Introduction to the History of Rome.

By the OXFORD UNIVERSITY PRESS.—Herbertson's Elementary Geography, Vol. VII: The British Isles.

Calendar of King's College, London.

Calendar of City of London College.

REVIEWS.

ELIZABETHAN LITERATURE.

A Literary History of the English People. Vol. III, *From the Renaissance to the Civil War*, II. By J. J. Jusserand. (12s. 6d. net. Fisher Unwin.)

The present volume of M. Jusserand's brilliant work centres in Shakespeare: it treats of his predecessors, of himself, and of his contemporaries and successors, with a final chapter of "Aftermath" down to the outbreak of the Civil War. The work opens on the English drama at the Renaissance, when its literature was not yet differentiated from that of other countries—mysteries, moralities, pageants, masques, ballets, and so forth, still maintaining their popularity. On the rise of the influence of Seneca, M. Jusserand draws attention to a fact "of paramount importance":

> At the same moment, in France and in England, those best entitled to speak uttered, in both countries, the same precepts. The cleverest critics, the most learned and experienced scholars, the thinkers of greatest fame, pronounced on the question of the neo-classicism adapted from the ancients, as opposed to the lawless romanticism inherited from the Middle Ages. In the two countries with the same energy, but widely different results, they declared for classical art.

Not only here, but throughout, the comparisons with French literary developments are very interesting and suggestive. "The principal cause of these opposite results of similar teachings given in both countries by equally authorized critics is the difference of the two peoples' genius, disposition, and temper." In France, the logic and simplicity of the rules appealed at once to the French mind; in London, the multitude insisted on other ideals—surprises, adventures, glaring colours. The theatrical troupes, the theatres, and the performances under Elizabeth are very carefully and fully described; and then the author returns to the compulsion of the tastes of the crowd upon the immediate predecessors of Shakespeare. The whole of this preliminary section is worked out with the view of bringing into sharp relief the central figure of the picture.

> A complete arsenal of infallible means for reaching success, admirable samples of rich lyrical poetry: thanks to Marlowe, a unique model of well built play ["Edward II"], logically developed from beginning to end, in a style sober and strong, a blank verse varied in its pauses and harmony, easy to make even more flexible, the true verse of the English stage: all this was available when Fame began to cast her first and very faint rays upon that player's servant, that "Johannes factotum," who was to carry the dramatic art of his country to heights unknown before him, inaccessible after.

M. Jusserand has put a vast amount of solid work into his handling of Shakespeare. He is never carried away by enthusiasm; when he applies a superlative, it is on a cool calculation of the facts. Here and there a difference of estimate is probably attributable to difference of national temperament or association. In his exhaustive scrutiny of the biographical details, his sober judgment brushes aside various ingenious theories and inferences. "What is most probable is that Shakespeare was neither the perfect ignoramus that some have wanted him to be nor the deep scholar imagined by others." "As for resemblances, numerous or striking as they may be (they are usually much less striking than we are told), it would be easy to parallel them from any literature, and prove thus that Shakespeare delighted in reading Chinese philosophers, Hindu dramatists, and Persian poets." As for the elusive "W. H." of the sonnets:

> To sum up, Mr. W. H. was, as it seems, the subject at once of the dedication and of the sonnets. He was rich, elegant, well read ("as fair in knowledge as in hue"), and of good family. There is some chance that the poet magnifies rather than that he depreciates, so much does he like to see at their best the advantages bestowed by Fortune upon his friend. The probabilities are that Mr. W. H. was neither a lord nor a personage of note: hence the difficulty of an identification which has baffled all attempts. The opinion I venture to express is strongly corroborated by the fact that the publication of the sonnets produced no effect at all and did not excite any curiosity.

In criticizing Shakespeare's dramatic work, M. Jusserand regards the poet as a jovial person of immense natural gifts—"the most marvellous that a poet ever received"—latterly falling into serious and even gloomy mood, but always keeping a shrewd eye upon success in his profession and business. "Shakespeare never purposely looks beyond the desires of his audience. . . . Shakespeare has but one master, his public; he is its faithful

servant, and neglects none of its whims. When he writes a drama he cares nothing for critics or essayists, nor for the verdict of learned noblemen. It was not Southamptons who would fill his theatre; for all such he had written his 'Venus'; to the many he addresses his plays." "He is no less indifferent than his spectators to dates, geography, and historic truth. He scarcely ever corrects a mistake, be it a glaring one found in the wretched pamphlet whence he derives his plot; he even adds some from absent-mindedness, carelessness, or from having read wrong. Many incoherences are due to the rapidity of composition. . . . In a few very rare cases the historical errors are deliberate, and introduced in order to augment the picturesqueness. . . . To please is the only rule. The great dramatist follows it to its extreme consequences, the best and the worst."

One of the qualities that Shakespeare received from Nature overshadows all his other gifts and makes us understand how, despite the changes of time, of schools, of literary ideals, despite an accompaniment of enormous defects (he did nothing by halves), his fame, in all lands, should have gone on increasing. It so happens that the quality usually the rarest is in him the predominant one: more than any poet, of any time, he is a life-giver. At his creating breath the dead leave their graves, heroes win their victories, lovers whisper in tones so soft that the beloved one must lend her ear to perceive them, in accents so penetrating that our heart is still moved by them. He draws from the dust of chronicles or stray pamphlets, from the stores of stage properties, from fairyland, from the dim recesses behind the scenes, the nothing, the abstract idea, the clumsy sketch, the wooden puppet, the coarse clay, out of which he will fashion his character; and, behold! the individual springs from his hands, lives, moves, speaks, is crowned with myrtle or laurel, or sinks into an irretrievable catastrophe. . . . If he introduces a dog into his play, that dog will have life and individuality, will be one dog in particular and no other, will have a disposition and manners quite as personal as Brutus, Hotspur, or Macbeth.

The illustration of this quality furnishes some of the most eloquent and striking pages of the volume. It is this life-giving faculty that is "the great poet's dominant virtue, that which, together with his lyricism, captivate us most strongly. His dramatic power, carried so far in his masterpieces, the art of constructing a play and of conducting it without a flaw to an inevitable termination, are unsurpassed, but are with him of less common occurrence. The life-giving power accompanies him much more constantly. . . . In the masterpieces, the dramatic power is incomparable." "The most perfect type of the Shakespearean play is 'Othello': in no other drama is his genius so constantly present." "Hamlet equals Orestes," wrote Musset, "Macbeth equals Oedipus, and I do not know what equals Othello." "A fame so immense is a phenomenon unique in literature."

It is unnecessary to follow the treatment of the contemporaries and successors of Shakespeare, or to decline into the "Aftermath" (except to remark that the Bacon-Shakespeare controversy is dismissed incidentally in a note, Shakespeare being "the one of all Bacon's contemporaries with whom he had least in common"). Every serious worker in English literature will make a point of perusing this brilliant and incisive study of its most splendid period.

"Sursum Corda."

Haileybury College, Past and Present. By the Rev. L. S. Milford. (10s. 6d. net. Fisher Unwin.)

Mr. Milford presents all the essential historical facts, and leaves a vivid impression of the spirit that has animated his school. His method is the very opposite of Dry-as-dust's; indeed, he anticipates that readers may think "that some of the articles and poems are trivial, or that there is too much of the humorous element," and offers suggestions by way of exculpation. Now, on the contrary, we are of opinion, not only that his excuses are valid so far as they go, but also that the suspected elements contribute very largely to the realization of his purpose; they bring home to outsiders the life of the school by multiplied strokes of detail, while they recall to old pupils events and circumstances that will touch them nearly. Having established new Haileybury on the ruins of the old East India College, Mr. Milford reviews the Masters, with very kindly and discriminating appreciations from thoroughly well informed and trustworthy sources—all of them men of impressive character and sound judgment, and each of them a distinctive contributor to the prosperity of the school. He then turns to the Boys. "What are we to say of the boys who are still at school? Are they still marked by that 'simplicity' and 'geniality' which has been said to be the characteristics of Haileybury?" No doubt. "They are a good sort from good homes as a rule"—"from homes where we know that it is necessary to work, not merely for jam or marmalade, but for bread itself." All the better for the school; and the chapter on Old Haileyburians, following their achievements and marking their characters in various spheres of active life, will not only awaken memories in fellow-students, but indicate to all readers the efficacy of the spirit and of the training of the institution. A separate chapter is devoted to the Servants—a necessary as well as a kindly attention. "The impression that I should like to leave on any stranger who may glance at these pages," says Mr. Milford, "is that there is a close bond between the Masters and their families and Old Boys and boys and servants at Haileybury, for I know that this is the case." Obviously it is the case, and it speaks strongly for the tone and efficiency of the place. For the rest, there are chapters on the *Haileyburian* (one of the ablest of school journals), cricket, football, school societies, speech days, and so forth—all the lines of activity in a healthy boy community. The volume is most liberally and effectively illustrated. Mr. Milford has undoubtedly realized his hope; he has brilliantly "succeeded in proving that one of the younger Victorian schools has justified her existence, and has shown herself not unworthy of the honourable name and fame to which she succeeded."

GENERAL NOTICES.

CLASSICS.

The Plays of Aeschylus. Translated, from a revised text, by Walte Headlam, Litt.D., late Fellow of King's College, Cambridge, and C. E. S. Headlam, M.A., formerly Fellow of Trinity Hall, Cambridge. (3s. 6d. Bell.)

We have already admired these plays, or most of them one by one, in Messrs. Bell's excellent series of "Classical Translations." The versions of "The Persians" and "The Seven against Thebes" are due to Mr. C. E. S. Headlam, who has been guided at difficult points by the notes left by his distinguished brother. The aim has been "to enable those who know some Greek to read the Greek of Aeschylus correctly." The work is based on a large and scholarly criticism of the text, and the meaning is brought out with strenuous fidelity and marked ability.

The separate edition of *The Seven against Thebes*, translated by C. E. S. Headlam, M.A. (1s.), follows faithfully the lines of Dr. Walter Headlam's work, and embodies his interpretations of various difficult passages.

Caesar Imperator: an Elementary Latin Reader. By J. W. E. Pearce, M.A., Head Master of Merton Court Preparatory School, Sidcup. (1s. 4d. Dent. Classical Series.)

Mr. Pearce sets forth, in sixty-one passages, a connected account of Caesar's life and work, the language being drawn mainly from Caesar's own writings. He also furnishes exercises based on the text: questions to be answered in Latin, questions on accidence and syntax, and English sentences for retranslation. The introduction supplies a short sketch of Roman history, a biography of Caesar with an estimate of his place in history, and a brief sketch of the prolongation of the Roman Empire into the Middle Ages. The little volume has been worked out with extreme care and great judgment, and will contribute largely to smooth the path of beginners. It "has been produced on the suggestion of Prof. E. V. Arnold in connexion with his scheme in 'Basis Latina' for 'standardizing' the grammar and vocabulary to be required of a boy in his early stages of learning Latin."

MATHEMATICS.

The Intermediate Arithmetic. Parts I and II, complete. By J. L. Martin. (1s. Harrap.)

Bright and interesting, the little book consists of exercises in the various rules of arithmetic (up to a definite point), of worked examples, and of questions suitable for use in connexion with oral practice in the classroom. The exercises include a certain number on the earliest rules, but these are not of the most elementary character. A course of instruction is implied which embraces as its upper limit some fractions, both vulgar and decimal, important weights and measures, British and metric, an initiation into methods of estimating areas and volumes, &c. A useful training in the application of general ideas of number to a variety of practical problems is afforded throughout. The work is arranged in two sections, respectively simple and more advanced. Both, however, as the title indicates, are of an intermediate character. Either may be obtained alone, or the two as a complete text-book, and special volumes for teachers furnish the answers to the exercises.

Plane and Spherical Trigonometry. By William Anthony Granville, Ph.D. (5s. 6d. Ginn.)

In a single compact volume of moderate dimensions, Dr. Granville combines a treatment of both plane and spherical trigonometry and a series of clearly arranged four-place tables giving the logarithms of numbers and the logarithms as well as the natural values of the trigono-

metrical functions. The work is one which may be expected to appeal to a number of students of many types. The subject-matter is discussed in a thoroughly able manner. A valuable feature, claimed as novel by the author, is the extensive use in the spherical branch of the subject of the principle of duality. Its employment enables the writer to investigate with much less labour the methods of obtaining the formulæ necessary for the solution of oblique triangles; further, he finds himself in a position to reduce the standard six cases to three. An entire chapter considers the value of spherical trigonometry as an instrument in discussing problems in geodesy, astronomy, and navigation. The attempt to render a few of the illustrations of three-dimensional figures more realistic by placing corresponding outlined cuts and shaded ones side by side is but indifferently successful. On the other hand, the diagrams representing graphs are excellent and present a most attractive appearance. The danger of celluloid rulers and protractors should be remarked on.

SCIENCE.

Practical Physics. By Lionel M. Jones, A.R.C.Sc., B.Sc., F.C.S., Head Master of the Central Secondary School, Birmingham. (3s. Longmans.)

The volume handles in successive parts the subjects of heat, light, and electricity on the plane of the secondary school. It sets forth a course of practical work, "in which the essentials of the subjects treated are developed from the work of the pupils themselves," a course that has been for several years tested with pupils from fourteen to seventeen in the author's school. Undoubtedly, "a pupil working through the course, assisted by explanations and natural extension of the work on the part of his teacher, would obtain a thorough grasp of the foundations of heat, light, and electricity, and a good working knowledge of the methods of investigation in these subjects, and would be prepared to cope with the London Intermediate Examination in science or any similar examination." The exposition is lucid and the experiments are well devised, and there is abundance of exercises, with general revision papers appended. The answers to the exercises and papers are supplied. 123 figures.

Introduction to the Preparation of Organic Compounds. By Emil Fischer, Professor of Chemistry in the University of Berlin. Translated by R. V. Stanford, B.Sc. Lond., M.Sc. Birm., Ph.D. Kiel. (4s. 6d. net. Williams & Norgate.)

Mr. Stanford translates from the most recent—the eighth—edition. The book consists of ninety preparations, the first seventy more especially for chemists, the rest rather for medical and biological students that wish to acquaint themselves with the methods of organic chemistry. It has gradually evolved out of the author's practical instruction in the University laboratories of Erlangen, Würzburg, and Berlin. Instructions are given, and urgently insisted on, as to the precautions necessary for the avoidance of accidents. The collection will be extremely useful to English-speaking students.

A sixth impression (second edition) of *First Stage Sound, Light, and Heat*, revised and rewritten by R. W. Stewart, D.Sc. Lond., is issued from the University Tutorial Press (2s., Clive). The work in its new form is based on a course of carefully selected experiments, requiring but simple and inexpensive apparatus, and mostly capable of being performed by the students themselves. The scope has been somewhat narrowed to accord with the present requirements of the Board of Education examinations, and this gives room for more thorough treatment. There is a sufficiency of good exercises, the answers being appended. The illustrations (fifty-six) are appropriate and effective. An excellent practical manual.

Messrs. Baillière, Tindall, & Co. publish a second edition of *Chemical Notes and Equations, Inorganic and Organic*, by G. H. Gemmell, F.I.C., F.C.S., Professor of Chemistry, Royal (Dick) Veterinary College, Edinburgh (5s. net.) The book is most serviceable for students of medicine, and covers the work for the First Professional Chemistry Examination. It has been carefully revised up to date, and contains a special chapter on "Ionization" by the author's son, Mr. Alexander Gemmell, B.Sc. Edin.

MODERN LANGUAGES.

Longmans' Illustrated First Conversational German Reader. By J. W. Bartram, M.A. (2s. 6d. Longmans.)

This is a counterpart to "Longmans' Illustrated First Conversational Reader." Simple texts are given, not for the absolute beginner, but for pupils that have worked through some adequate preliminary course; and such texts are not merely to be read, but to be used as a basis for conversation lessons. Very useful notes are appended, as well as word lists and a vocabulary. The book has been very thoughtfully and elaborately worked out. Pupils that have honestly tackled the course will have acquired a considerable stock of words and phrases and not a little confidence in spontaneous speech and writing. There are some interesting illustrations.

A First Spanish Book. By H. J. Chaytor, M.A. (2s. 6d. Arnold.)

The essentials of Spanish grammar are presented systematically and clearly, and impressed by well devised exercises for translation and retranslation. The vocabulary in the early stages bears upon some subject or sphere of daily life; and generally, while the purposes of business and travel are not neglected, the main view regards the attainment of acquaintance with the literature of Spain. Commercial correspondence is exemplified in considerable variety in an appendix; and in another appendix there are poetical and prose selections. Vocabularies complete the book. The volume forms an excellent introduction to the study of Spanish.

Les Feuilles d'Automne de Victor Hugo. Edition annotée à l'usage des Etudiants. Par H. C. Norman, B.A., Directeur du County School, Ramsgate. (1s. 4d. Dent. Modern Language Series.)

This edition should have a circulation far beyond the schools. It is nicely printed, and the annotation, which is wholly in French, supplies adequate information both as to the matter and as to the language. There is a short biographical and historical introduction; a series of "jugements" on Victor Hugo's genius; and a useful bibliography. An excellent edition, whether for schools or for general readers.

HISTORY.

The Growth of Greater Britain. By F. B. Kirkman. (1s. 9d. Blackie.)

Mr. Kirkman traces the growth of our Colonial Empire from the early days of preparation in the Tudor Period, down through the commercial conflicts of the eighteenth century to the present time. In a picturesque and racy manner he depicts the struggles of the buccaneers, merchant adventurers, and other traders to share in the spoil that was pouring into Spain from America and into Holland from the East Indies; and he carries us with him in his discussion of the attempts at colonization during the Stuart Period. The relation of the Seven Years' War to colonial development and consolidation receives adequate treatment, and the later colonial wars are described in some detail. The book is written in a breezy style. The statements of opinion, in some cases, are almost of necessity only partial explanations, and occasionally undue emphasis is laid upon comparatively trifling events. Our success in India was due very largely to our superiority on the sea, and to the fact that Dupleix was hampered by the French Government. Then again, Byng was executed not only "to warn the other admirals," but also (and more especially) to silence the public clamour against the incapacity and maladministration of Newcastle. The maps and illustrations materially assist the reader. As an introduction to larger works, the book is excellent.

The Reign of Queen Victoria. By J. Holland Rose, Litt.D. (1s. 9d. Blackie.)

The purpose is "to give the young reader some idea of the change in the extent of the Empire, the great improvements in the condition of its population, and the great development of its wealth and material resources." The literature, science, and art of the period are expressly omitted. The method of the book, which is a compromise between the biographical and the movement methods, is very satisfactorily worked out. The social and political struggles of England are sketched clearly and sympathetically. The intricate affairs of foreign policy are very definitely and lucidly set forth. The author has exercised great care and judgment in selecting his materials. Unnecessary detail is avoided. The notes, however, here and there seem to underrate the intelligence of the reader. Surely "chimney" does not need either a note or an illustration. The paper duty was abolished in 1861, not in 1860. There are helpful summaries, and the illustrations are good. Altogether a sound little book.

English History in the Classroom. By G. W. Gwyther. (2s. 6d. Longmans.)

"This book is not intended to supplant the text-book, but to act as a guide to its reading; still less is it an alternative to the teaching of the master." It is not "a storehouse of facts"; it seeks to help students in the upper forms of secondary schools and pupil-teacher centres to get at the meaning of facts by pertinent questions and references. Suggestions for further study, hints on the making of notes (a vexed question in secondary schools), and an exhaustive bibliography to enable the student to co-ordinate literature and history are main features. The treatment of the subject is broad, European events receiving due attention from the beginning. "What can they know of England who only England know?" The graphic representations given in the appendixes are full of interest and should stimulate the student. Altogether, the book is fresh both in conception and in style, and it should prove a special boon to such students as lack opportunities of good oral guidance.

Mr. Fisher Unwin has added to his varied and useful "Half-Crown Library of History and Biography" a sixth impression of *The Industrial and Commercial History of England*, by the late Prof. Thorold Rogers, edited by his son, Arthur G. L. Rogers (2s. 6d. net). The matter was delivered as lectures in the University of Oxford, and it is most serviceable for present-day study.

Messrs. Cassell have commenced a new and revised issue (in fourteen fortnightly parts, 7d. net each), of the well known *Dictionary of English History*, edited by Sidney J. Low, M.A., Fellow of King's College, London, and F. S. Pulling, M.A., late Professor of History, Yorkshire College, Leeds. It is illustrated with full-page plates.

ENGLISH COMPOSITION.

Composition, Oral and Written. By Charles Sears Baldwin, A.M., Ph.D., Professor of Rhetoric in Yale University. (5s. net. Longmans.)

Prof. Baldwin has adapted his work on "Writing and Speaking" to more rapid use by more advanced students. "Both the order and the

(*Continued on page* 30.)

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proportions have been changed; parts have been recast; many of the exercises have been modified or made over; and the whole has been reduced in size by about a third." The volume is still a substantial one, the exemplification being abundant. The whole purpose is to achieve two objects: clearness and interest. The principles of clearness and interest are first dealt with generally; next, clearness in plan (paragraphs) and clearness in details (sentences), and interest in details; then clearness in compilation (collection and grouping of facts), and so on to extended argument and exposition, &c. One might have expected narrative to come before exposition, but the teacher can choose his own order. Description is handled as the main illustration of principles of interest, and narrative is partially utilized in advance for the same object. The volume contains a great quantity of useful matter which may be still more effectively adapted in future editions and perhaps reinforced in the treatment of the sentence.

English Grammar and Composition. By A. M. Williams, M.A. (4s. 6d. Longmans.)

Mr. Williams, who has had long and varied experience as Principal of the Glasgow Church of Scotland Training College, aims at supplying "a compendious account of the history and the structure of the English language, and an introduction to the principles of literary criticism." The first part of the volume illustrates the bearing of grammar on composition and traces the history of existing words, forms, and construction. The second part examines, with copious exemplification, the practice of good authors, so as (1) to familiarize the student with the build of good English and thus help him to write it, and (2) to expound what is called literary form, and so to help the student to understand and appreciate it. Numerous exercises are provided, and attention is directed to authors and works for wider reading in further study of the principles. The plan is excellent, and it is patiently and thoroughly worked out. The volume is an admirable compendium of its subject, evidently the fruit of long study and of practical experience.

Composition and Rhetoric. By Charles Swain Thomas, A.M., Head of the English Department in the Newton (Mass.) High School, and Will David Howe, Ph.D., Head of the English Department in Indiana University. (5s. Longmans.)

The purpose is "to help the young student to write more clearly and more forcefully," not "to train writers in the finer graces of language." Accordingly, the main stress is placed upon the word, the sentence, and the paragraph; but attention is devoted to the composition as a whole, to the chief forms of composition, to letter-writing, to punctuation, and to common grammatical errors. The directions are generally clear and simple; examples are adduced from good writers; and there is abundance of exercises "which will test the student's understanding of the principles of writing." The work is well executed; and it contains much material that teachers may treat in their own way if they so prefer.

ATLASES, MAPS, CHARTS.

The Department of the Interior at Ottawa has issued a magnificent *Atlas of Canada*, prepared under the direction of James White, F.R.G.S., Geographer. It contains eighty-three most elaborate and excellent maps, exhibiting every aspect of the country; territorial divisions, land elevations, geology, forests, trade and commerce, telegraphs and telephones, railways and canals, population, sunshine and temperature, &c. The introductory portion gives tabular statistics of population, land and water areas, social conditions, &c., in 1901, of the progress of Canada in area, population, material industries, &c., 1867–1906, &c. The work is conceived on the widest lines, and worked out in remarkable detail and thoroughness. We should doubt whether any other country in the world can show such a complete and vivid compendium of its position, character, and resources.

Messrs. West, Newman, & Co. (Hatton Garden, London) publish an immense *Historical Table* compiled by Lady Louise Loder, and "revised by several educational authorities"—a Chart of History from B.C. 4000 down to A.D. 1900 (10s., mounted on canvas for hanging on schoolroom wall). Each century is allotted one column, except the eighteenth century, which has two, and the nineteenth century, which has three. The facts are boldly shown, the more important names and events being printed in red. The selection of points is probably just as good as another; and the general effect is impressive.

Teachers should see Messrs. Philips's pamphlet on their *Map Storage System*, "economizing space and yet handy for reference." The practical devices are numerous and advantageous.

REFERENCE ANNUALS.

Hazell's Annual, edited by Hammond Hall (3s. 6d. net, Hazell, Watson, & Viney), has been revised up to the end of November. It now enters on its twenty-fifth year, with new features enhancing its utility and interest. There has been a rearrangement of the articles so as to group together intrinsically related subjects; and a very full index at once indicates the position of every matter of importance. A notable new feature is the introduction of signed articles upon some of the larger topics of the time, by distinguished writers specially informed. The more immediate questions of broad interest are treated with very serviceable fullness. It is a most laborious work, strenuously kept up to date, and framed to meet inquiries upon the most diverse subjects and the leading personages in all departments of activity. More than ever it is indispensable.

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Who's Who Yearbook is supplementary to *Who's Who*, being composed of the tables that were formerly a popular feature of the latter volume, and indeed the original nucleus of it. It may be regarded in a sense as a key to the larger work, but is very useful independently. The tabulated form renders the matter readily accessible.

The Writers' and Artists' Yearbook—a Directory for Writers, Artists, and Photographers (1s. net, A. & C. Black)—contains the usual lists of journals and magazines (with brief but useful details), American as well as British; of publishers (books and music), British and American; of colour-printers, &c.—and other pertinent information. A very helpful book of reference.

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MISCELLANEOUS.

Family Names and their Story, by S. Baring-Gould, M.A. (7s. 6d. net, Seeley), offers an elaborate treatment of a singularly interesting subject. Mr. Baring-Gould has had a good few forerunners, who have at least taught him caution: the blind have led the blind into pitfalls. He aptly compares the mazes of nomenclature with the road to Plessis Castle ("Quentin Durward"): "every yard of this ground is rendered dangerous by snares and traps and caltrops, and pitfalls deep enough to bury you in for ever." Very likely the experts will find Mr. Baring-Gould in a hole now and again; but, however that may be, the book is extremely attractive, and has involved a vast labour of investigation. The author starts with tattoo and tribal names, sire names, token names, and so on, down through the vast variety of place names and names derived from foreign languages, down to nicknames and the vicissitudes of names. And, after all, there are various appendixes treating specially of particular points of difficulty or of historical interest. It is a delightful book to dip into anywhere.

Success Secrets, by O. S. Marden (3s. 6d. net, Fisher Unwin), is a charming little book, administering wisdom in small doses, so that the busiest of us can carry it in his pocket and be sagely instructed at any time in half a minute. It is very cleverly compiled and presented; and there is not a line of it but is well worth reading and—practising.

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[Enough for "secondary schools and technical classes."]

Trigonometry, Plane: an Elementary Text-book for the Higher Classes of Secondary Schools and for Colleges. By H. S. Carslaw, Sc.D. Camb., D.Sc. Glas., Professor of Mathematics in the University of Sydney, formerly Fellow of Emmanuel College, Cambridge. 4s. 6d. Macmillan.

RELIGIOUS AND MORAL.

Old Testament, Stories from the. By E. M. Wilmot-Buxton, F.R.Hist.S., Wiston's School, Brighton. 1s. 6d. Methuen.

[Very little alteration of Bible text; selection and brief explanation. Attempt "to deal straightforwardly with some of the older stories of the Old Testament, from the point of view that the meaning of things, and the lessons they were meant to teach, are of more importance than the exact way in which they happened."]

Pain, The Mystery of. By William Hendy Cock, L.C.P., F.G.S., B.Sc. Lond., Science Tutor and Assistant Chaplain, Exeter Training College. 6d. Exeter: Western Times Co.

[Earnest. Pain "is the result of the hatred of the Devil for God and His creatures, but is overruled by God for the good of humanity."]

Sermons of Henry Smith, the Silver-Tongued Preacher: a Selection by John Brown, D.D. Cambridge University Press.

[Brief biography; twenty-one selections. Neat and handy.]

Social Hygienics: a New Crusade. By James Marchant, Director, National Social Purity Crusade. Forewords by the Right Hon. H. J. Gladstone, M.P., Home Secretary. 1s. Swan Sonnenschein.

Social Reclamation: a Study in Service. By Malcolm Spencer, M.A., Social Service Secretary of the Student Christian Movement. 1s. net. London: Student Christian Movement (93 and 94 Chancery Lane, W.C.).

[Second of a series written for social study circles. Much valuable information and suggestion.]

Spirit, Matter, and Morals. By R. Dimsdale Stocker. 1s. net. Owen.

[Reasoned, moderate, earnest.]

Sunday Concerts and the London County Council: a Lesson for Municipalities. By Frederic Peake, M.A., LL.D. Second edition. Lord's-Day Observance Society (20 Bedford Street, Strand, W.C.).

Sunday Opening of Museums, Art Galleries, and Libraries: Has it been a Success? By Frederic Peake, M.A., LL.D. Sixth edition, revised and corrected. Lord's-Day Observance Society.

MISCELLANEOUS.

Emigration of Poor Children to the Colonies. Read before the Colonial Club at Oxford by Kingsley Fairbridge, Rhodesia and Exeter College.

Farthest from the Truth: a Series of Dashes. By the authors of "Wisdom while you Wait" and George Morrow. 1s. net. Pitman.

[Humorous paragraphs on current topics.]

Finland, The Finnish Party in, and their Present Programme. Helsingfors: The Finnish Literary Society's Printing House.

International Conciliation. Series of valuable Pamphlets issued by the American Branch of the Association for International Conciliation (Sub-Station 84, New York City).

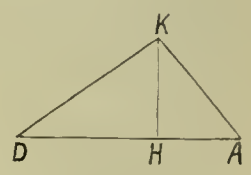
Newspaper and Citizen Classes, and How to hold them; with Specimen Lessons. 1d. Women's Industrial Council (7 John Street, Adelphi, W.C.).

Working Women and the Poor Law. By B. L. Hutchins. 1d. Women's Industrial Council.

MATHEMATICS.

16710. (J. BLAIKIE, M.A.)—At H, the orthocentre of an acute-angled triangle ABC, HK is drawn perpendicular to the plane ABC such that HK is a mean proportional between the segments into which any one altitude is divided by the orthocentre. Prove that the three sides of the triangle, the three altitudes, the three medians, and the three bisectors all subtend right angles at K.

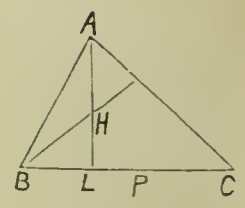
Solution by B. C. WALLIS, B.Sc., F.C.P.



The rectangle contained by the segments of the altitudes is constant; therefore HK is constant. The figure is a section along the altitude AD. Since AH : KH = KH : HD, AKD is a right angle. Therefore KA is perpendicular to the plane BKC. Therefore KA is perpendicular to KC and to KB. Similarly KB is perpendicular to KA and KC. Therefore K is the corner of a cube. Therefore KA is perpendicular to any line in the plane BKC. Therefore any line from A to a point in BC subtends a right angle at K, &c.

The following solution is due to the PROPOSER:—

$$AB^2 = AH^2 + HB^2 + 2AH.HL$$
$$= AH^2 + HB^2 + 2HK^2 = AK^2 + BK^2.$$



Therefore AKB is a right angle. Similarly AKC is a right angle. Therefore AK is perpendicular to the plane BKC. Therefore AK is perpendicular to all lines in the plane BKC. Therefore AK is perpendicular to KP when P is any point in BC. Therefore AP subtends a right angle at K. Therefore all the medians, altitudes, and bisectors subtend a right angle at K.

16722. (R. J. DALLAS.)—A sheaf of planes through a fixed point O cut two pairs of non-intersecting lines (aa'), (bb') in AA′, BB′, and AA′, BB′ meet in P. To show that the locus of P is a cubic surface, and to examine the break-up of the surface when the lines lie on a quadric.

Solution by Prof. NANSON.

If P is on an arbitrary line x, then PAA′, PBB′ are generators of the quadrics determined by xaa', xbb', and therefore the plane OAA′BB′ touches both quadrics at P. Hence, to determine the position of P on x, we draw from O the four common tangent planes to the two quadrics. One of these four is clearly the plane Ox, and does not give a solution because its points of contact are in general distinct. The other three do not pass through x and therefore touch at the same points, viz., the meets of the planes with x. Thus, in general, there are three positions of P on an arbitrary line x, that is, the locus of P is a cubic surface.

But if a, a', b, b' are generators of the same system of the same quadric, and x be any other generator of the same system, then obviously any point of x is a position of P. Thus the cubic degenerates into the quadric through a, a', b, b', and a plane.

The PROPOSER solves as follows:—

The four straight lines are met by *two* lines, which we take to be $(x = 0,\ y = 0)$ and $(z = 0,\ u = 0)$. We take a, b to be $(x = 0,\ z = 0)$, $(y = 0,\ u = 0)$; a' to be $x = y,\ z = u$; b' to be $y = mx,\ u = nz$. [If $m = n$ the four lines lie on the quadric $xu = yz$.]

Let the point P (not O) be $x'y'z'u'$. Then the planes Pa, Pa' are

$$xz' = x'z, \quad (x-y)(u'-z') = (x'-y')(u-z),$$

and Pb, Pb' are

$$yu' = y'u, \quad (y-mx)(u'-nz') = (y'-mx')(u-nz),$$

and these, thus assorted, give us the lines PAA′, PBB′.

To find equation of plane containing the lines, take convenient points on them, as $x = 0$ on PAA′, $y = 0$ on PBB′. Thus these points are $0,\ x'-y',\ 0,\ z'-u'$, and $(y'-mx')/m,\ 0,\ (u'-nz')/n,\ 0$. Also we have $x'y'z'u'$ as third point. Hence equation of plane is

$$\begin{vmatrix} x & y & z & u \\ x' & y' & z' & u' \\ 0 & x'-y' & 0 & z'-u' \\ n(y'-mx') & 0 & m(u'-nz') & 0 \end{vmatrix} = 0.$$

If then, in this equation, we regard $xyzu$ as a fixed point O, and $x'y'z'u'$ as variable, we get a cubic surface. On putting $m = n$, we get

$$(x'u'-y'z')[xu'-x'u+y'u-yu'+yz'-y'z-m(xz'-x'z)] = 0,$$

showing that the cubic breaks up into the quadric now containing the lines and the null plane of O.

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16480. (M. S. NARAYANA, M.A.)—Sum the series:—

(1) $1-3(1+\frac{1}{3})+5(1+\frac{1}{3}+\frac{1}{5})-7(1+\frac{1}{3}+\frac{1}{5}+\frac{1}{7})+\ldots$ to infinity.

(2) $\log\cosh\theta+\log\cosh\frac{1}{2}\theta+\log\cosh\theta/2^2+\ldots$ ad inf.

Solution to First Series by S. GOPALAM, B.A., L.T.; *to Second Series by* A. M. NESBITT, M.A.

(1) We have (*Differential Calculus*, Edwards, page 89)

$$\tfrac{1}{2}(\tan^{-1}x)^2=\tfrac{1}{2}x^2-(1+\tfrac{1}{3})\tfrac{1}{4}x^4+(1+\tfrac{1}{3}+\tfrac{1}{5})\tfrac{1}{6}x^6-(1+\tfrac{1}{3}+\tfrac{1}{5}+\tfrac{1}{7})\tfrac{1}{8}x^8+\ldots.$$

Differentiating twice with respect to x,

$$(1-2x\tan^{-1}x)/(1+x^2)^2$$
$$=1-3x^2(1+\tfrac{1}{3})+5x^4(1+\tfrac{1}{3}+\tfrac{1}{5})-7x^6(1+\tfrac{1}{3}+\tfrac{1}{5}+\tfrac{1}{7})+\ldots,$$

and, putting $x=1$,

$$\tfrac{1}{4}(1-2\tan^{-1}1)=1-3(1+\tfrac{1}{3})+5(1+\tfrac{1}{3}+\tfrac{1}{5})-7(1+\tfrac{1}{3}+\tfrac{1}{5}+\tfrac{1}{7})+\ldots;$$

therefore $1-3(1+\frac{1}{3})+5(1+\frac{1}{3}+\frac{1}{5})-7(1+\frac{1}{3}+\frac{1}{5}+\frac{1}{7})+\ldots$
$$=\tfrac{1}{4}(1-2.\tfrac{1}{4}\pi)=\tfrac{1}{4}-\tfrac{1}{8}\pi.$$

(2) Let S_n be the sum of n terms, so that

$$S_n=\log\cosh\theta\cosh\theta/2\ldots\cosh\theta/2^{n-1},$$

and put $e=x^{2n}$. Then

$$e^{S_n}=(x+1/x)(x^2+1/x^2)\ldots(x^{2n-1}+1/x^{2^{n-1}})/2^n$$
$$=(x^{2n}-1/x^{2n})/[(x-1/x)\,2^n+H]$$
$$=\sinh\theta/[2^n\sinh(\theta/2^n)]$$
$$=\sinh\theta/\theta,\text{ when } n \text{ is infinite};$$

therefore $S_\infty=\log\sinh\theta-\log\theta.$

16751. ("INQUIRER.")—Professor Jevons in his "Pure Logic," page 65, expresses the opinion that the combination of equivalences ($A=B+C$) and ($B=c+d$), in which c and d are the negations of C and D, involves "subtle contradictions." Verify, or disprove, this opinion.

Solution by H. MACCOLL, B.A.

By the method explained in my "Symbolic Logic and its Applications" (Longmans), the limits of the statements A, B, C, D in alphabetical order, are as follows:—

$$(\epsilon:A:\epsilon)(C'+D':B:C'+D')(\eta:C:\epsilon)(\eta:D:\epsilon).$$

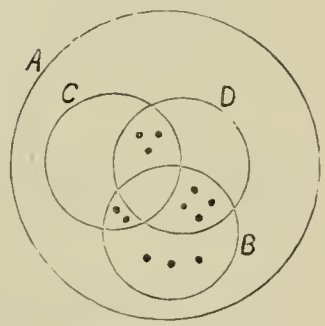
Omitting as needless factors that are formal certainties, and therefore true whatever be our "material" or special data, this becomes

$$(\epsilon:A)(C'+D':B:C'+D'),$$

which is equivalent to $A^\epsilon(CD=B')$.

Thus Prof. Jevons's combination of equivalences simply asserts (1) that A is a material certainty (*i.e.*, that it follows necessarily from the data of our problem), and (2) that to affirm CD is equivalent to denying B, the accented letter B′ denoting in my notation (like the italic b in Jevons's notation) the denial of B. Hence it follows that (contrary to his opinion) Jevons's combination of equivalences involves no self-contradiction.

Prof. Jevons's perplexity was due, first, to the fact that (like the generality of logicians even now) he made no distinction between the true and the certain, nor between the false and the impossible; and, secondly, to the fact that his system of logic (like the traditional Aristotelian) always assumes the possibility (or consistency) not only of a statement, class, or quality A, but also the possibility of its negation, an assumption which here contradicts our data, the given combination of equivalences.

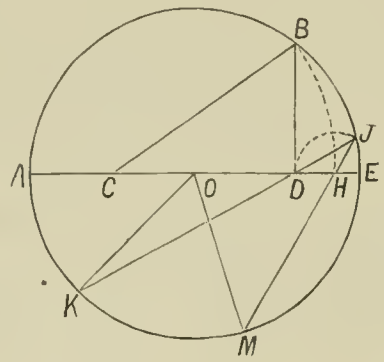


The matter may be illustrated by the accompanying diagram. Speaking of a point taken at random out of the twelve points marked in the figure, let the symbols A, B, C, D respectively assert as statements that the point which will turn up will be in the circle A, that it will be in the circle B, that it will be in the circle C, that it will be in the circle D. Taking the disposition of the points in the figure as our data (assumed throughout), it is clear that A is certain; that B, C, D taken separately are variable, that is to say, are neither certain nor impossible; that $B+C$, which asserts that the point will be either in the circle B or in the circle C, is (like A) a certainty: that the denial of C or of D implies B, and, conversely, that the affirmation of B asserts the denial of either C or D; and, finally, that to assert CD is equivalent to denying B.

Once a symbolic solution of a logical problem is found, it is easy enough to illustrate it (as here) by a suitable diagram; but (except in very simple cases) the converse does not generally hold. Diagrammatic solutions often involve assumptions which lead to conclusions that do not hold universally.

16746. (Major C. H. Chepmell, late R.A.)—Given two sides of unequal length, construct (by ruler and compasses) a triangle which shall have the angle included between the two given sides four times the angle opposite the greater.

Solution by the Proposer.



Let the two given sides be r and s, where $r > s$.

With centre O, radius OA $(= r)$, describe circle ABE.

Draw diameter AE, and on OE cut off off OD $(= s)$.

From D draw DB perpendicular to AE. Bisect AO in C. Join CB.

In OE take point H, so that

$$CH = CB.$$

With centre H, radius HD, describe a circle cutting circle ABE in J. Join JD and produce to cut circle ABE in K. Join OK.

Then $\angle KOD = 4\angle ODK$, and triangle KOD is the required triangle.

Proof.—Join JH, and produce to cut circle ABE in M. Join MO and JE. Now CB = CH by construction; therefore $CB^2 = CH^2$, and

$$CD^2 + DB^2 = CD^2 + DH^2 + 2CD.DH,$$
$$DB^2 = DH^2 + 2DH\,(CO + OD),$$
$$r^2 - OD^2 = DH^2 + 2DH.OD + r.DH,$$
$$r^2 - (OD + DH)^2 = r.DH \quad \text{and} \quad DH = HJ, \quad r^2 - OH^2 = r.HJ;$$

therefore $HM = r$; therefore $\angle JHE = \angle MOH = 2\angle MJE$;

but $\angle JHE = 2\angle JDH$ or DJH;

therefore $\angle MJE = \angle DJH$ or JDH and $\angle KJE = 2\angle JDE$ or ODK;

therefore $\angle KOD = 4\angle ODK$.

16754. (Professor Cochez.)—Limite de $(\cos x + \sin x)^{\cot g\, x}$ lorsque x tend vers zéro.

Solutions (I) *by* Lieut.-Col. Allan Cunningham, R.E., *and* Professor Escott; (II) *by* C. M. Ross.

(I) Let $u = (\cos x + \sin x)^{\cot x}$.

Then $\log u = \cot x \log(\cot x + \sin x) = [\log(\cos x + \sin x)]/\tan x$
$= Y/X$ suppose.

$$\text{Lim}(\log u) = (dY/dx)/(dX/dx),$$

$dY/dx = (-\sin x + \cos x)/(\cos x + \sin x)$; $\lim dY/dx = 1$, when $x = 0$; $dX/dx = \sec^2 x$; $\lim dX/dx = 1$, when $x = 0$; therefore $\lim(\log u) = 1$, when $x = 0$, whence $u = e$.

(II) The expression assumes the form 1^∞, when $x = 0$. Its true value is found as follows. Let

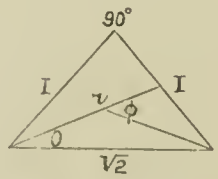
$$P = (\cos x + \sin x)^{\cot x},$$

then
$$\begin{aligned} \text{og}\, P &= \cot x \log(\cos x + \sin x) \\ &= (\tan x)^{-1} \log(\cos x + \sin x) \\ &= \left(x + \frac{x^3}{3} \ldots\right)^{-1} \log\left[1 + x - \frac{x^2}{2!} - \frac{x^3}{3!} \ldots\right] \\ &= \frac{1}{x}\left(1 - \frac{x^2}{3} \ldots\right)\left[x\left(1 - \frac{x}{2!} \ldots\right) - \tfrac{1}{2}x^2\left(1 - \frac{x}{2!} \ldots\right)^2 \ldots\right] \\ &= \left(1 - \frac{x^2}{3} \ldots\right)\left[1 - \frac{x}{2!} \ldots\right] = 1, \end{aligned}$$

when $x \to 0$. Therefore $P = e' = e$.

16759. (R. Chartres.)—P is any point in the triangle. Show that the mean value of $\theta = \log 2$.

Solution by the Proposer.



$$\begin{aligned} M(\theta) &= \int_0^{\frac{1}{2}\pi} \theta . \tfrac{1}{2} r^2 d\theta\, \Delta = \int_0^{\frac{1}{2}\pi} \theta \operatorname{cosec}^2(\tfrac{1}{4}\pi + \theta)\, d\theta \\ &= \left[-\theta \cot(\tfrac{1}{4}\pi + \theta) + \int \cot(\tfrac{1}{4}\pi + \theta)\, d\theta\right]_0^{\frac{1}{2}\pi} \\ &= 0 + {}_0^{\frac{1}{2}\pi}\{\log \sin(\theta + \tfrac{1}{4}\pi)\} = \tfrac{1}{2}\log 2; \end{aligned}$$

therefore $M(\phi) = 2M(\theta) = \log 2$.

15081. (D. Biddle.)—Given the in-circle and the circumcircle, with the distance between their centres $= (R^2 - 2rR)^{\frac{1}{2}}$, and the Simson lines in respect of the points on the circumcircle determined by producing the line joining the two centres, construct the triangle.

Remarks by the Proposer *with a view to eliciting a Solution by Pure Geometry.*

The interesting Solution of this Question given by Mr. Youngman (see *Reprint*, Vol. xv, New Series, p. 96) involved the use of conics, which are somewhat needlessly disallowed by geometricians. But, in any case, it will be well to cast about for data indicating the possibility of solving the Question in the way satisfactory to all parties.

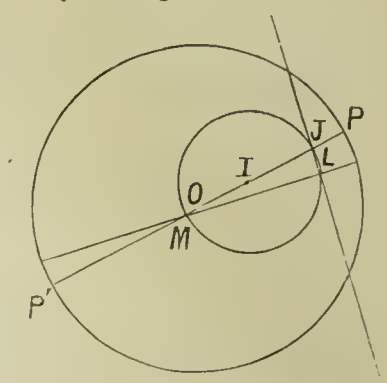


Fig. 1.

Fig. 1 exhibits the data contained in the Question, and shows that for the particular points P, P′ the two Simson-lines cross at right angles on the in-circle (at L), intersecting it also separately where it cuts the line PP′ (at J, M). Now the locus of such pairs of Simson-lines, in respect of points at opposite extremities of a diameter of the circumcircle, is the nine-point circle, which touches the in-circle in one point. Consequently L is that point, and it lies on their common diameter. Join LI and produce, making $LN = \frac{1}{2}R$. Then N is the centre, and NL the radius, of the nine-point circle, which can at once be described. Again, N is the mid-point between the circumcentre and the orthocentre. Join ON and produce, making NH = ON. Thus H, the orthocentre, is easily found, and we have, besides, the three chief circles, and a pair of Simson-lines of unique character. If it be considered worth while, we can next find the centroid G which is on OH $(= 3OG)$. Then, if O_a be the foot of the perpendicular from O on BC, GOO_a, GHA will be triangles in all respects similar, the linear measurements of the latter being twice those of the former. It should also be noted that O_a is on the nine-point circle; moreover, AH is parallel to OO_a.

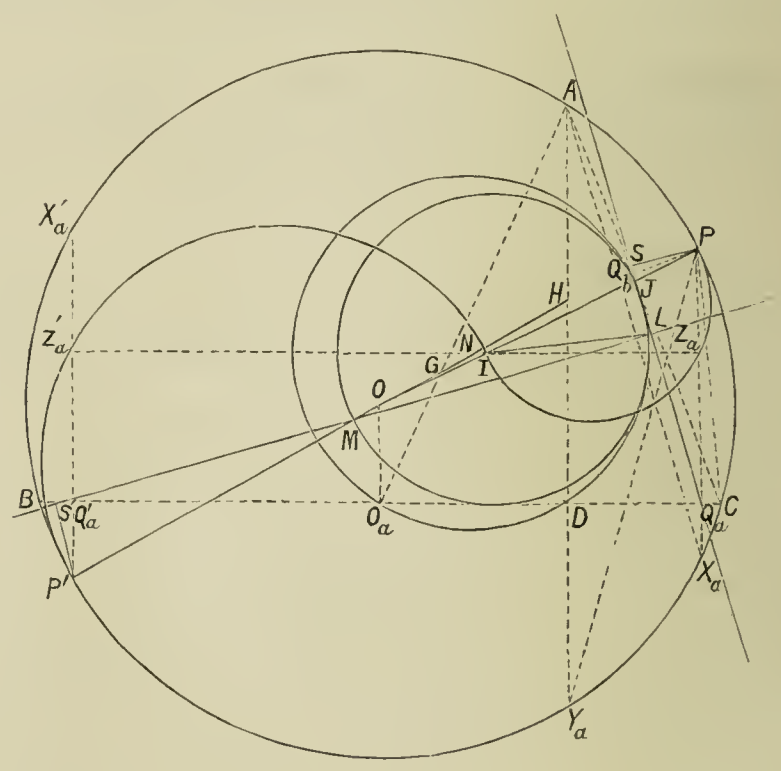


Fig. 2.

Again, let ϕ be the angle formed by BC with the one given Simson-line (LM) and by AH and all perpendiculars to BC with the other given Simson-line (JL). Then $\phi = ACP$. For, Q_a, Q_b being the feet of the perpendiculars from P on BC, AC respectively, LM produced passes through them, and CQ_b coincides with CA; also P, Q_b, Q_a, C are concyclic, whence $< PQ_aQ_b = PCQ_b = PCA$. It follows that, if PQ_a be produced to the circumcircle again at X_a, which is equidistant with P′ from BC, then $AX_aP = \phi$, and AX_a will be parallel to the Simson-line LJ, the arcs separating them on the circumcircle being also equal. Likewise $AY_aP = \phi$, therefore $HY_aP = \phi$.

If, next, circumcircles be described on opposite sides of PI, P′I, the former will intersect PQ_a at a distance r from Q_a, where the one Simson-line cuts BC, whilst the latter will intersect $P'Q'_a$ (produced) at the same distance from Q'_a, where the other Simson-line cuts BC; also Q_a and Q'_a are equidistant from O_a; and AI produced meets OO_a on the circumcircle.

Let PS be the perpendicular from P on the one Simson-line, and

P′S′ be the perpendicular from P′ on the other, and let θ be the angle formed with PP′ by PQ_a, $P'Q'_a$ and all perpendiculars to BC. Then

$$(P'I\cos\theta - r)\cos\phi = P'S' \quad\text{and}\quad (PI\cos\theta + r)\sin\phi = PS;$$

whence $\cos\theta = (P'S' + r\cos\phi)/P'I\cos\phi = (PS - r\sin\phi)/PI\sin\phi$;

and we have $\quad P'I.PS\operatorname{cosec}\phi - PI.P'S'\sec\phi = r.$

At worst, therefore, we have the biquadratic

$$r^2\cos^4\phi + 2r.PI.P'S'\cos^3\phi - (r^2 - PI^2.P'S'^2 - P'I^2.PS^2)\cos^2\phi$$
$$-2r.PI.P'S'\cos\phi - PI^2.P'S'^2 = 0.$$

In any case, there is some interest attaching to our data.

Note.—The Editor has kindly suggested the additional fact that AI bisects not only the angle BAC, but OAH also.—D. B.

16736. (Lt.-Col. Allan Cunningham, R.E. Suggested by Question 16664.)—Find a number of sets of three numbers L, M, N, such that N = L.M, wherein L, M, N contain l, m, n digits respectively, and N contains all the digits of L and M, and no more, so that $n = l + m$. (Sets produced by the mere addition of ciphers to a given set L, M, N should be *excluded*.)

Solution by the Proposer.

It is easily found (by trial) that one of l, m must be >1 and $n > 2$. No general rule has been found; but the following examples have been found (by trial):

$$\left.\begin{array}{l} N = 126 \quad 153 \quad 688 \\ L.M = 6.21\,\uparrow;\ 3.51\,\uparrow;\ 8.86 \end{array}\right\} \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \text{A};$$

$$\left.\begin{array}{l} N = 1395 \quad 1435 \quad 1827 \quad 2187 \\ L.M = 15.93;\ 35.41;\ 21.87;\ 27.81 \end{array}\right\} \cdots\cdots\cdots \text{B};$$

$$\left.\begin{array}{l} N = 10251 \quad 10525 \\ L.M = 51.201\,\uparrow;\ 5.2105\,\uparrow \end{array}\right\} \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \text{C}.$$

All such co-factors (L, M) admit of having any number of ciphers added on the right of either, or of both, of L, M. The four examples marked with an arrow (↑) admit also of any number of ciphers being inserted (at the arrow) in M. The last example of group B gives a curious property of 3, viz., $L = 3^3$, $M = 3^4$, $N = 3^7$.

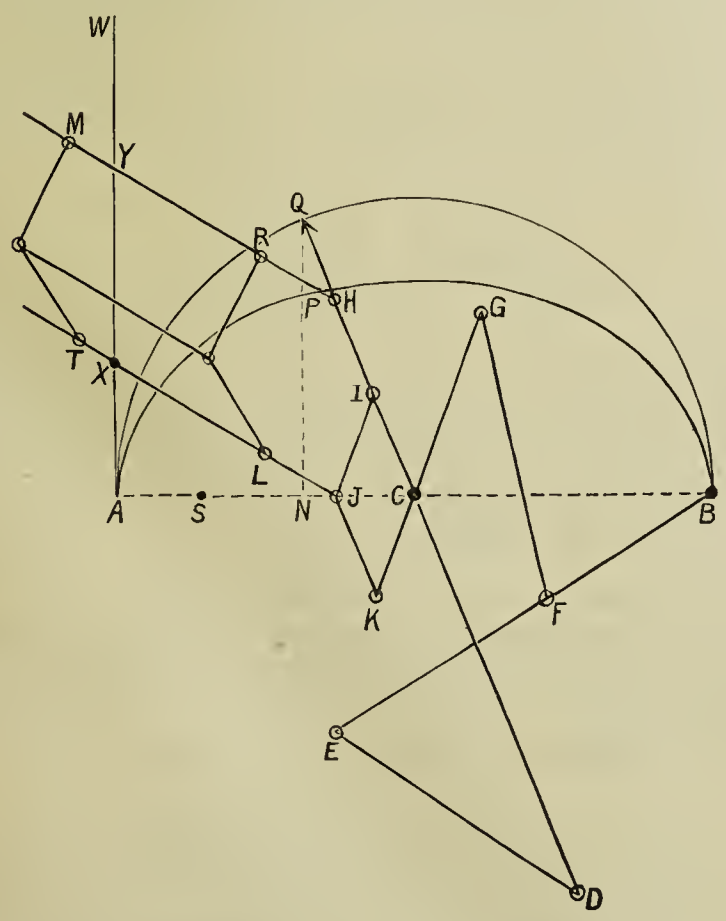
16707. (Professor Nanson.)—Two triangles Δ_1, Δ_2 are polar and the triangle Δ is self-polar to the same conic. If Δ, Δ_1 are inscribed in or circumscribed about a conic, so are Δ, Δ_2.

Solution by Clement V. Durell.

Δ_1, Δ_2 are self-polar with respect to conic Σ; Δ, Δ_1 are inscribed in conic S; reciprocate the system with respect to Σ; then Δ remains Δ as it is a self-conjugate triangle, and Δ_1 becomes Δ_2; S becomes a conic S′, so that Δ, Δ_2 circumscribe the conic S′ and are therefore inscribed in a conic.

QUESTIONS FOR SOLUTION.

16787. (G. S. Carr, M.A.)—On a scale drawing of the orbit of Halley's Comet I want to mark the comet's place at any assigned time



after its perihelion passage. Show that this is effected mechanically by the linkwork figured above. Let A be the perihelion, APB the semi-orbit, S the solar focus, C the centre of the ellipse, AQB the auxiliary semi-circle. B, C are stationary pivots; movable pivots and bars are shown by little circles and dark connecting lines. QD, GK, and BE are entire bars; DE = BC = FG; CD = BE; CG = BF; CH = CS and is bisected at I; CIJK is a rhombus. The part to the right of the rhombus is Kempe's "Five-barred contra-parallelogram linkage"; its function here is to confine the motion of the point J to the straight line AB. (See the writer's *Synopsis*, Art. 5405.) LRMT is a *translator* or double parallel rulers with two ends pivoted to H and J. The semi-circumference AQB and the tangent line AW, taken equal to it in length, are each divided into 38 equal parts corresponding to the 38 years of the comet's semi-revolution. Suppose that the comet's place six years after leaving the perihelion is required. At a distance AX = six divisions along AW, place a pin X; keeping the bar JT in contact with the pin, move the link-work until the readings at Y, where RM crosses AW, and at the pointer Q are the same. The ordinate NQ will then cut the orbit in the required point P.

16788. (H. MacColl, B.A.)—It is given that, when nothing is assumed beyond the data of the problem to be solved, the chances that the statements A and B are true are respectively known to be a and b; it is given also that the chance that A is true when B is assumed to be false is equal to the chance that B is true when A is assumed to be false. Find the following respective chances:—(1) that A is true, assuming B to be true; (2) that A is true, assuming B to be false; (3) that A and B are both true; (4) that A and B are both false; (5) that A is true and B false.

16789. (R. Chartres.)—If the perimeter $2s$ of a triangle be constant, find the mean value of $(Rr^l r_1^m r_2^n r_3^p)$.

16790. (C. M. Ross, B.A.)—y and z are both functions of x and $yz = 1$; prove that

$$\begin{vmatrix} z & \dfrac{dz}{dx} & \dfrac{1}{2!}\dfrac{d^2z}{dx^2} \\ \dfrac{dz}{dx} & \dfrac{1}{2!}\dfrac{d^2z}{dx^2} & \dfrac{1}{3!}\dfrac{d^3z}{dx^3} \\ \dfrac{1}{2!}\dfrac{d^2z}{dx^2} & \dfrac{1}{3!}\dfrac{d^3z}{dx^3} & \dfrac{1}{4!}\dfrac{d^4z}{dx^4} \end{vmatrix} \Big/ z^3 = \begin{vmatrix} \dfrac{1}{2!}\dfrac{d^2y}{dx^2} & \dfrac{1}{3!}\dfrac{d^3y}{dx^3} \\ \dfrac{1}{3!}\dfrac{d^3y}{dx^3} & \dfrac{1}{4!}\dfrac{d^4y}{dx^4} \end{vmatrix} \Big/ y^2.$$

16791. (Pulinbihari Das, M.A.)—Prove that

$$\text{(i)}\ \int_0^\infty \frac{e^{a\cos bx}\sin bx\sin(a\sin bx)}{1+x^2}\,dx = \tfrac{1}{2}\pi\,(e^{ae^{-b}} - 1)\sinh b,$$

$$\text{(ii)}\ \int_0^\infty \frac{e^{a\cos bx}\cos bx\cos(a\sin bx)}{1+x^2}\,dx = \tfrac{1}{2}\pi\,(e^{ae^{-b}}\cosh b - \sinh b).$$

16792. (Professor Sanjána, M.A.)—Prove that

$$\sin\tfrac{2}{7}\pi + \sin\tfrac{4}{7}\pi + \sin\tfrac{8}{7}\pi = \tfrac{1}{2}\sqrt{7},$$

and $\quad \sin\tfrac{1}{11}\pi + \sin\tfrac{3}{11}\pi + \sin\tfrac{9}{11}\pi + \sin\tfrac{27}{11}\pi + \sin\tfrac{81}{11}\pi = \tfrac{1}{2}\sqrt{(11)}.$

16793. (Lt.-Col. Allan Cunningham, R.E.)—Show how to resolve $N = (x^4 + 4y^4)$ into four factors algebraically for certain (integer) values of x, y. *Ex.*—Give one or more examples of $N > 10^{20}$ completely resolved into prime factors.

16794. (Professor Nanson.)—To quadrics touching eight fixed planes, tangent planes are drawn through three fixed lines, each lying in one of the fixed planes. Show that the locus of the meet of the variable tangent planes is a twisted cubic.

16795. (R. C. Archibald, Ph.D. Suggested by Question 16778.)—If from the points of contact of parallel tangents to a tricuspidal quartic $X^{-\frac{1}{2}} + Y^{-\frac{1}{2}} + Z^{-\frac{1}{2}} = 0$ three other tangents be drawn, they will meet in a point on the conic $Z^2 + 12XY + 4XZ + 4YZ = 0$, which touches (1) the line $X + Y + Z = 0$ at its join with $X - Y = 0$, and (2) the lines

$$[11 \pm 3\sqrt{(15)}\,i]\,X + [11 \mp 3\sqrt{(15)}\,i]\,Y + 24Z = 0,$$

when they are one tangent to the quartic. Express the equation of this conic in the form $X'^{\frac{1}{2}} + Y'^{\frac{1}{2}} + Z'^{\frac{1}{2}} = 0$, and show that it is a parabola when the quartic is the three-cusped hypocycloid. Discuss the converse of this general theorem.

16796. (Sonti V. Ramamurty, B.A.)—From the circle $r = 2a\sin\theta$, develop, geometrically, the curve $4\,(a/y - 1) + a^2/x^2 = 0$.

16797. (C. E. Youngman, M.A.)—On PG, normal to a parabola, Q is such that $SQ = \tfrac{1}{2}PG$; show that the locus of Q is a cardioide.

16798. (A. M. Nesbitt, M.A.)—A conic is inscribed in a triangle ABC; and a second conic, which cuts BC harmonically, has 4-pointic contact with it. Prove that the locus of the pole of BC is a quartic through B and C, having a double point at A.

16799. (W. F. Beard, M.A. Suggested by Question 16743.)—If the directrix of a conic circumscribed about a triangle touches the polar circle of the triangle, then the focus must lie on the concentric circle which cuts the circum-circle orthogonally.

16800. (Professor NEUBERG.)—On prend sur les côtés BC, CA, AB d'un triangle ABC trois points A′, B′, C′ tels que l'on ait

$$BA'.BC = CB'.CA = AC'.AB = K.$$

Peut on choisir K de manière que les points A′, B′, C′ soient en ligne droite ou que les droites AA′, BB′, CC′ concourent en un même point.

16801. (PHILIP T. STEPHENSON.)—E is the middle point of the diagonal BD of a quadrilateral ABCD. Given that

$$\angle EAB = \angle CAD, \quad \text{and} \quad \angle ECB = \angle ACD,$$

prove that $$EA.EC = ED^2.$$

16802. (W. GALLATLY, M.A.)—In the triangle ABC let a circle, passing through A and touching OI in I, cut OA in T; prove $AT = 2r$; hence $OI^2 = R(R-2r)$.

16803. (M. T. NARANIENGAR, M.A.)—If x, y, z denote the distances of the point of contact of the in-circle (or ex-circle), and the nine-point circle from the feet of the altitudes, and a, b, c the sides of the triangle, show that $ax \pm by \pm cz = 0$.

16804. (W. E. H. BERWICK.)—If $23u = \pi$, prove that

$$\sin 9u\,(16\cos 4u - \sec 2u \sec 11u) = \sin 5u\,(4 + \sec 5u) - \sqrt{(23)}.$$

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10160. (D. BIDDLE.)—A random square lies randomly within a given circle; find the probability that it encloses the centre.

10297. (Professor RAMASWAMI AIYAR, M.A.)—Four straight lines form four triangles with given circum-centres. Show that the line of collinearity of the orthocentres touches a fixed circle.

10328. (R. W. D. CHRISTIE.)—Euler has demonstrated that $2^m(4N+1)$, where $(4N+1)$, is a prime, may be resolved into two integral squares. Extend the theorem to show that $(r^2+1)^m(4N+1)$ = two integral squares.

11290. (Professor MORLEY, M.A.)—Parallel tangents are drawn to a cardioide. Show that the points of contact have a fixed Hessian point. [The two Hessian points are called centres of inversion by Professor Casey, and isodynamic points by Professor Neuberg.]

11610. (D. EDWARDES, B.A.)—An elliptic cylinder rotates about its axis with small angular velocity ω in an infinite mass of viscous liquid. If the motion is steady and there is no slipping at the surface, prove (1) that the current function is $\psi = \frac{1}{4}\omega c^2(e^{-2\eta} + \cos 2\xi + 2\eta \cosh 2\beta)$, where ξ, η are conjugate functions, such that $x + \iota y = c\cosh(\eta + \iota\xi)$, and $\eta = \beta$ at the surface of the cylinder; (2) that the pressure at any point is $p = p_0 + (2\mu\omega \sin 2\xi)/(\cosh 2\eta - \cos 2\xi)$, p_0 being the pressure at infinity, and μ the coefficient of viscosity; and (3) that the couple which must be applied, per unit length of cylinder, in order to maintain the motion, is $2\pi c^2\mu\omega \cosh 2\beta$.

11635. (W. J. GREENSTREET, M.A.)—V (x, y, z) satisfies Laplace's equation, and is continuous for every finite value of x, y, z; if, whatever value be given to the variables, the absolute value of V is less than a fixed quantity M, then V (x, y, z) reduces to a constant.

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Messrs. J. Mercer and H. T. H. Piaggio were elected members.

Mr. T. H. Blakesley exhibited an instrument for the "kinematical solution of cubic equations," and also models of various modified forms of the instrument.

The following paper was communicated:—

"The Eliminant of the Equations of Four Quadric Surfaces": Mr. A. L. Dixon.

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CONTENTS.

	Page
Leader: Municipalization	51
Notes	52
Educational Conferences of the Month—The Frankfurt Reform Scheme of Classical Teaching—Teachers and Statistics—The Norwegian Private School—Mr. Peter Voss—Board of Education List of Recognized Secondary Schools.	
The late Mr. Hugh MacColl	53
Summary of the Month	54
Universities and Colleges	55
Cambridge — London — Leeds—Edinburgh—German Universities—American Universities.	
Current Events	56
Fixtures — Honours — Endowments and Benefactions — Scholarships and Prizes — Appointments and Vacancies — Literary — General.	
The College of Preceptors:	
Half-yearly General Meeting	61
Report of the Council	61
The Dean's Report	64
Election of Members of Council	64
Annual Dinner	65
Adjourned Meeting of the Council	65
Educational Conferences	65
The English Association—The Classical Association—The Mathematical Association—Public-school Science Masters—Correlation of Mathematics and Physics—The Modern Language Association—The Historical Association—The Geographical Association—Head Masters' Association—Association of Assistant Masters—Association of Assistant Mistresses—Association of University Women Teachers—London County Council Teachers—Private Schools Association—North of England Education Conference.	
Grammatical Terminology	70
Correspondence: The Decline of German Teaching as an Inference from Local Examination Statistics (P. Q.)	70
The Educational Ladder	71
Reviews	71
Exposition and Illustration in Teaching (Adams)—The Cambridge Modern History: Vol. VI. The Eighteenth Century—Elements of the Differential and Integral Calculus (Love).	
General Notices	73
First Glances	75
Mathematics	76

The Educational Times.

Municipalization.

A WELL KNOWN lecturer on educational subjects told an audience of teachers the other day that, when they had prayed for those who were under the King and over them, there were few indeed left to pray for. Truly the teacher has many masters, and it is not unnatural that he should make an inventory of them, so that he may be able to submit himself more completely to one, if haply this submission should free him from the remaining multitude. The Incorporated Association of Assistant Masters in Secondary Schools has been seriously considering the advisability of seeking for its members recognition as civil servants.

Hitherto secondary teachers have found their masters among governors and others of a more or less non-official class. Up till quite recently they have been comparatively free from any form of State control. Many of them are still in this happy position, but the gates of the prison-house are closing in upon ever-increasing numbers of them, and the wiser are deliberately facing the new situation. If they are to come under the regulations of the Board of Education, they are at least entitled to inquire whether any advantages are likely to accompany the impending loss of freedom. The Assistant Masters are in doubt, and, like the sensible men they are, have adopted the businesslike method of finding out the facts of the case so far as these are available. They have made an elaborate inquiry into the conditions of service of teachers in English and foreign secondary schools, and a printed report, running to 175 pages, was presented to the Council of their Association on January 6, 1910. The book exposes a condition of affairs very unfavourable to the English secondary teacher in the matters of salary, tenure, and status. Since, in many of the countries that appear to advantage by comparison with England, the teachers are members of the Civil Service, it might appear that the report has served its purpose, and that English teachers should at once agitate for recognition as Civil Servants.

But our shrewd Assistant Masters are in no hurry to commit themselves. They have just had the information presented to them, and wish to turn it over in their minds before taking any action. At their meeting no vote was taken, but in the opinion of those most likely to know, had the question been put to the meeting the result would have been a slight majority in favour of the Civil Service arrangement. Indeed, if the English Masters could reckon on being received into the Civil Service on the same terms as the German teachers at present enjoy, there can be no doubt that a substantial majority would welcome the change. For not only does the German teacher receive a better salary, but he has a better status than his English compeer.

The Assistant Masters have done wisely to postpone their decision; but it can only be a postponement. The question presses, and, in fact, is in a way answering itself. External authority is taking an ever-increasing share in school administration. Secondary education is being steadily municipalized. More and more of our endowed schools are coming under what is called "local control," and over the whole country have sprung up secondary schools of a new type that is bluntly named "municipal." These schools are in many cases nominally managed by committees or boards of governors, but they are really under the direct control of the Local Education Authority. This control is making its influence felt even in those endowed schools which as yet are only *aided* by the Local Authority, and it is bound to increase. Then, too, the Board of Education is extending its borders, and day by day is taking a larger share in regulating secondary education. Teachers are therefore gradually becoming Civil Servants, so far as restrictions are concerned, and not unreasonably are anxious to know whether there are to be any compensating advantages. So far as the municipal schools are concerned there is, in at least some cases, the great advantage of a scale of salaries—not a very satisfactory scale, but still a great improvement on the blank that preceded it. In some cases there is even a pension scheme. Hitherto the encroachments of the Board of Education have been unaccompanied by any corresponding compensation. Secondary teachers have not even their former Column B to show as an offset to their subordination to Whitehall. Meanwhile the encroachment goes on apace, and it is for the Assistant Masters and other secondary

teachers to consider whether it may not be better to claim the rights of Civil Servants at once than to wait till they become Civil Servants in every respect except the privileges.

It may be questioned whether the change would involve any real loss of independence, for the secondary teachers are in any case rapidly losing whatever independence they had. There are the two well recognized ideals—that of an independent profession, self-supporting and self-governing, and that of a well organized Government department, in which every individual teacher would have an opportunity of developing his professional capacity to the utmost, while taking no share in the administrative part of the work. The first is the higher ideal, and is at present realized in the cases of law and medicine; but, as we have seen, all the indications point to an increasing difficulty in realizing it in the case of education. The modern tendency is all against it. Even the doctors, who have so long held out, are being gradually officialized—witness the increasing desire among them to obtain municipal appointments as officers of public health and medical inspectors in schools and elsewhere. The last retreat of independence in the teaching profession is to be found in the great public and endowed schools and among the staffs of the hard-used private schools. The former are at present beyond the reach of the Board of Education, the latter are suffering under its heaviest buffets.

Fortunately, the very causes that are sapping the independence of the profession have developed among its members an unwonted feeling of solidarity. The recent joint action with regard to the Register is a striking proof of the possibilities of the present situation. The teachers, while keeping their eyes open to the naked facts of the case, will do well to meet the inevitable with a bold front. If they are to be municipalized, let them make the best terms with Local Authorities. If they are to become Civil Servants, let them at least fight for the greatest amount of freedom and the most generous conditions that are consistent with the public good. In particular, let them insist upon being recognized as a profession that is autonomous so far as principles are concerned. The Consultative Committee must be recognized as a body whose advice is to be not only asked but followed. At present there is an impression abroad that teachers' opinions on teaching matters are likely to be wrong *because they are teachers*, while the opinions of administrators on these same matters are likely to be right because they know nothing about teaching, and are therefore able to "take a broader view." This childish tattle cannot be treated with the contempt it deserves, since the tattle comes from those who have the power to act upon it. In any dealings with the powers that be, the teachers must make the best terms they can on the material side; but there can be no surrender of their *professional* independence without complete loss of self-respect.

NOTES.

The past month, as usual, has been crowded with educational conferences. Elsewhere we endeavour to present the main points of discussion and the principal resolutions passed, and we could wish we had space enough to do justice to the arguments. Though much familiar matter has been threshed out once more, there are tokens of fresh vigour and incisiveness that bespeak a clearer insight and a real advance. While the importance of the literary side of education is fully recognized, the claims of science and of more practical elementary work are strongly pressing forward. The very natural fears for the fate of Greek are subsiding, as the calm recognition of facts overcomes the startled vagaries of imagination. The educational possibilities of the English Language and Literature are more and more realized; and perhaps the English Association will by and by settle down to a more definite practical aim at furtherance of the fruitful study of English in the schools. In point of energy and businesslike procedure, the Assistant Masters' Association stands prominent. The Report of an Inquiry into the Conditions of Service of Teachers in English and Foreign Secondary Schools, submitted at their annual meeting, is a striking example of enterprise, and forms a valuable basis of future progress, though the interpretation of the facts from foreign countries requires very careful handling in view of their application to the conditions of this country. In spite of repetitions and confusions, the conferences afford great encouragement to the hopes of reasonably rapid and well-ordered progress.

The latest volume of the Board of Education's Special Reports will attract much attention. The incubation of it has been leisurely enough. It is more than three years since Mr. J. W. Headlam, Mr. Frank Fletcher, and Mr. J. L. Paton went to Germany to study the working of the Frankfurt Reform Scheme of classical teaching, which had been in operation in certain selected schools for some ten years. Under this scheme, the German boy, having undergone thorough drill in his native language and made substantial progress in French, starts Latin at twelve and Greek at fourteen: he is worked on the intensive principle. The verbal study is firmly subordinated to the purpose of learning and realizing how the Greeks and Romans lived. Hence verse composition is excluded from the gymnasium, and prose composition is much restricted, while a good working knowledge of the ordinary forms and constructions, with only incidental attention to irregularities and anomalies, suffices for a grasp of the literary contents. A whole literature cannot be overtaken at school, and the selections may be open to adverse criticism; for instance, the German system gives an apparently questionable predominance to historical authors. It may be, too, that there is danger of over-pressure in the earlier stages of Latin. Such blemishes, however, are capable of easy correction. The important thing is that the three investigators are in general agreement that the Frankfurt Scheme presents a better solution of the problem of classical education than has yet been reached in England.

The West Riding County Council show a thoroughly Yorkshire vigour in the management of their educational affairs. Apparently the head masters are finding it somewhat of a strain to keep step with them. At the meeting

of the Incorporated Association of Head Masters, Mr. C. W. Atkinson, of Ilkley, brought forward a resolution to the effect that the demand of the Local Education Authorities for statistics over and above those furnished to the Board of Education through the school registers was seriously hampering the head masters' work. The details of exemplification set forth by Mr. Atkinson appear to have caused a sensation. "His list," we read, "was received with astonishment; and the rest of the members simply scoffed at the futility of much of the information demanded." "So far as could be gathered from the Conference," the *Yorkshire Daily Post* says, "only in Yorkshire and Lancashire are the secondary schools bothered to this extent, and many of the other masters present seemed to be thankful that their schools were under other authorities." We observe, however, that Mr. A. W. Newsome, of the Stationers' School, complained, in his presidential address to the Assistant Masters' Association, "that they were ridden to death by statistics, and their existence was a plague of ruled lines and figures" —quite generally. There can be little doubt that there is just ground for dissatisfaction: the tendency of the time is to compile statistics of everything, and the masters are naturally asked for the statistics of education. The importance of statistics is not to be gainsaid, and we are not moved by the scoffs of head masters; but it is bad policy to cumber the teachers with clerks' work. Why should a County Council not appoint a statistical reporter to go round and collect the desired information? The teachers can hardly be altogether relieved, but they need not be unnecessarily oppressed.

The four countries in the north of Europe have been very successful in their recognition of private schools, and in this way have provided, either at no cost to the State or at a relatively small one, schools that hold their own with the best schools in the land. One of the foremost of the men that accomplished this was Mr. Peter Voss, who died in harness, at the age of seventy-two, on December 17 last. Mr. Voss was born at Bergen in 1837, was educated at the cathedral school there, and, after seven years at the University, started, in 1863, a private school in Christiania with his friend J. J. Aars, who predeceased him by fifteen months. The hundred pupils of their first year had increased to 860 in 1880; and, though these numbers declined somewhat in consequence of the erection of new schools, their gymnasium remained the largest in Norway. The school that bore, and still bears, the name "Aars and Voss" will not soon be forgotten, for in it were trained many of the men that now hold leading positions in the State schools and at the University. Teaching came naturally to Mr. Voss. At school he had helped to teach his younger school-fellows, and all through his undergraduate years he spent some part of most days in one or other of the schools in the capital. His pen was ever busy in writing school books, magazine articles, and valuable reports. In 1879 he founded, with Herman Trier of Copenhagen, the well known educational monthly *Vor Ungdom*, and in 1892-94 he was a member of the small Royal Commission that modernized secondary schools in Norway so completely. Of the work of that Commission he has written a long account in Wychgram's *Deutsche Zeitschrift* for 1897, entitled "A School Fight on Norse Ground."

The new Board of Education List of Recognized Secondary Schools, which bears date December 30, 1909, has, compared with these Norse results, a very different tale to tell. This list records the names of 802 grant-earning secondary schools and of 81 recognized schools that do not earn grants—*e.g.*, Sherborne, Repton, University College School, and a few private schools. These last number fifteen, twelve of them girls' schools, two boys', and one for boys and girls. "But there are, no doubt, many more schools," says Sir Robert Morant, "of high—indeed, of the highest—efficiency which have not been so recognized, through not having applied for inspection, and which are therefore not at present included." There is no doubt that many private schools, especially such as may be termed research schools, are determined not to part with their independence. And there are still more, very successful in preparing pupils for the business of life, that, for want of the help readily given to the 802 schools, cannot easily meet the requirements of the Board in the matter of laboratories and the like. Are the pupils in these latter schools less the citizens of the State than those in aided schools? What interest can our legislators have in rubbing out a type of school that, with wise treatment, can render the State in quantity and quality such noble service? It is no mere matter of opinion—it is an ascertained fact, recorded in the history of countries differing widely in political conditions—that there is no difficulty in using the same set of regulations for all good schools, whatever their origin, be they municipal schools, foundation schools, or approved private schools. Only in this way can a lop-sided development of our educational system be avoided.

MR. HUGH MACCOLL.

Many readers of *The Educational Times* will learn with sincere regret that Mr. Hugh MacColl, B.A. (Lond.), whose name has long been a very familiar one to those interested in the mathematical columns of the journal, passed away unexpectedly at the close of last year. Mr. MacColl's life was devoted to teaching and to literary work, the latter very varied in its form of expression, but all inspired by the intense earnestness of a deeply philosophical and truly scientific mind. Logic, mathematics, philosophy, religion, and fiction are all indebted to his busy pen for valuable contributions to their store of literature. His numerous papers will be found in the columns of the *Athenæum*, in *The Educational Times* and its *Mathematical Reprint*, in the *Hibbert Journal*, and in various other well known English and French magazines. Among his works, published in volume form, may be noticed "Mr. Stranger's Sealed Packet," "Ednor Whitlock," "Symbolic Logic," and "Man's Origin, Destiny, and Duty," the last-named issued as recently as last year.

Mr. MacColl was seventy-two years of age at the time of his death. He was a brother of the late Canon MacColl. His name points to Scotland as the home of his family, but he himself spent a large proportion of his life in France, where he lived and worked at Boulogne-sur-Mer. For a lengthy and very appreciative notice of Mr. MacColl, readers are referred to an article in the *North of France Times* (Jan. 8, 1910) to which the present writer is indebted for a portion of the above details.

SUMMARY OF THE MONTH.

A BRIEF account of the numerous Educational Conferences of the month will be found in a later part of our present issue.

A COMMITTEE, with Mr. C. P. Trevelyan, M.P., Parliamentary Secretary to the Board of Education, as Chairman, and Mr. W. R. Barker, of the Board of Education, as Secretary, has been appointed by the President of the Board of Education to inquire into the administration of elementary education endowments. The terms of reference are "to inquire into the administration of (*a*) endowments, the income of which is applicable or is applied to or in connexion with elementary education, and (*b*) small educational endowments other than the above in rural areas, the application of which to their proper purposes presents special difficulties; and to consider how far, under the existing law, it is possible to utilize them to the best advantage; and whether any, and, if so, what, changes in the law are desirable in the direction of conferring upon county and other Local Authorities some power in respect of such educational endowments or otherwise."

SIR ROBERT MORANT's report on the Royal College of Art for the year 1908–9 [Cd. 5,003] states that the total number of students under instruction during the whole or some part of the year under review was 215, as compared with 199 during the previous year. Of these, 185 (141 men and 44 women) were taking full-time courses with a view to associateship of the College; and 30 (15 men and 15 women) were external students specially admitted to craft classes organized in connexion with the work of the College. The number of full-time students under instruction at the close of the academic year was 163. The 185 full-time students in 1908–9 included 14 students in training, 12 national scholars, 20 Royal exhibitioners, 21 local exhibitioners, 32 Royal College of Art scholars, 4 junior art scholars, 39 free students, 43 fee-paying students. The fees paid during the year by the fee-paying full-time students and the external students amounted to £872. 9s., as compared with £676. 16s. in 1907–8. During 1908–9, 26 students received appointments as teachers, designers, or craftsmen.

IN an article on "Some Problems of Secondary Education" in a recent issue of the *School World*, Mr. W. A. Brockington, Director of Education for Leicestershire, raises several questions which deserve the earnest consideration of all who desire a complete and duly correlated national system of education. In the first place, there is the problem connected with the differentiation of secondary schools and the differentiation of the curricula in these schools. Then the question as to how to secure an adequate supply of trained teachers in secondary schools is discussed. "It is of no use," says Mr. Brockington, "to palter with the problem of the training of secondary-school teachers." Thirdly, there is the problem as to the length of the secondary-school life. "Public opinion has still to be educated into the general acceptance of the axiom that secondary education begins at the age of ten or eleven, and must be continued until at least the age of sixteen or seventeen; and that, accordingly, the privilege of free secondary education imposes a real obligation of self-sacrifice upon the parent." Commenting upon what should be the character of secondary education in the future, Mr. Brockington maintains that we should preserve what is good in traditional knowledge, and, keeping our schools in living touch with the changing needs of society, make the curriculum of secondary schools an epitome of the experience of the race. All sorts of teaching, if properly imparted, represent culture—science, theoretical and applied, the construction of engines, and manual work.

THE recommendations, made jointly by several of its sub-committees, to the London Education Committee for the organization of a system of central schools in London have been adopted by the Education Committee, with the exception of a few relating to certain points concerning the teaching staff, and the consideration of these has been deferred. A system of schools is to be established giving an educational course not provided in existing elementary or secondary schools, and the new schools, which will be known as central schools, will have either an industrial or a commercial bias, or both. The schools will take the place of the existing higher elementary and higher grade schools, and will be fed by contributions from surrounding schools, as most of the higher grade schools are at present. The curriculum will provide in all cases for manual and practical work, and, in the case of girls, for instruction in domestic subjects. The curriculum of each school will be considered specially, and be determined with the view of meeting the needs of the district. Pupils will be selected between the ages of eleven and twelve, and parents will be given the opportunity of choosing either a secondary school or a central school for these children. The schools will be organized on a four years' course, and provision will be made for bursaries to be held by pupils on their attaining the age of fourteen. These bursaries will not exceed 500 in number, and will consist of maintenance grants from the age of fourteen at the rate of £10 a year. The total annual cost of this arrangement is estimated at £7,500. It is intended that the number of central schools shall be fewer than the present higher elementary and higher grade schools, and shall be carried on under the ordinary regulations of the Board of Education, and in this way be free from the restrictions imposed by the higher elementary schools' regulations. In order that the parents of candidates for admission may be given an opportunity of realizing the advantages afforded by the new schools, it is intended to issue a short descriptive pamphlet.

THE sixth annual report of the Manchester Education Committee (for 1907-8) provides an excellent example of the way in which an educational authority can build up a complete and duly correlated system of education to meet the precise needs of the area under its charge. The section dealing with higher education treats chiefly of technical education. The number of individual day and evening students enrolled at the Municipal School of Technology for the session ending July 31 was 5,299, as compared with 5,149 for the previous session. The number of individual students enrolled in the day departments was 661, as compared with 651 for the session 1906-7. The class entries for the session were 11,379, against 10,979 for the session 1906-7. These figures do not, however, include the class entries in respect of students in the day departments of the school. The results show a marked increase on the previous session. The imperial grant received year by year increases steadily, amounting during 1906-7 to £9,773. During the past year opportunity has been taken to improve and develop the organised courses of instruction in several of the evening departments, in order more thoroughly to systematize the training given, and to bring the various subjects of the respective evening courses into closer organic relation. The courses in the departments of Mechanical Engineering, Electrical Engineering, Architecture and Builders' work, Municipal and Sanitary Engineering, and Textile Manufacture, are thus graduated and organized to cover a period of three or five years, leading up to the evening certificate or diploma of the school, as the case may be. A large and increasing number of tests have been carried out during the year for various firms in Manchester and district.

A SECTION of the Indian Guild of Science and Technology has been formally inaugurated at Leeds University. The Guild is an association which has been formed by Indian students at Universities in England and Scotland, on the Continent, and in America, with the object of fostering the study of natural science amongst the cultured people of India, and of promoting the application of science to the development of Indian industries and resources. The meeting was attended by all the Indian students in Leeds and by delegates from various English and Scotch Universities. There were also present Lord Airedale, Mr. A. G. Lupton (Pro-Chancellor of Leeds University), Prof. A. Smithells (Dean of the Faculty of Science at Leeds University), and other members of the professorial staff interested in the new organization. Prof. Smithells was elected President, and delivered an inaugural address. The Hon. Secretary, Mr. S. F. Viccajee, of Leeds, read a report which described the origin and progress of the movement. After communications had been passed between students in England and Scotland, he said the work of organization was carried on to the Continent, and the result was very gratifying, as the Guild was now 120 strong. Some of the members were already back in India, working at a scheme of much more ambitious character than the one they were inaugurating at that meeting. They had decided to form five sections, with the following centres:—Edinburgh, for medicine; Glasgow, for mechanical

engineering; Leeds, for leather manufacture; Birmingham, for mining; and Manchester, for dyeing.

In the course of an address on "The Teaching of History," delivered before the members of the Edinburgh Branch of the Secondary Education Association of Scotland, Prof. Lodge said history was destined to take a more important place in the University curriculum. For the success of the teaching of history in the Universities a great deal depended on the foundation laid by secondary schools. History was, on the whole, the most essential subject for the education of their future citizens; it was the very grammar of politics. They might look at the questions of the present day, such, for instance, as the House of Lords and Home Rule, and these questions, he held, could only be properly understood by looking at them from an historical setting. In the majority of cases the ordinary citizen acquired his historical knowledge of politics from the writings in the newspapers of professed partisans, whose history was supplied in doses carefully measured and weighed out for a particular purpose. The history thus acquired would be comparatively worthless because it would be a building constructed without a foundation. It was erroneous to say that history had no educational value if it was properly taught. History, in his opinion, was, perhaps, the best method of training and disciplining the imagination, a faculty which was too often left to take care of itself. History also supplied a very valuable training of the reasoning faculties. Coming to the question of what sort of history should be studied, he said ancient history must continue to hold a prominent place, but the foremost place should be occupied by the history of our own country. Excessive stress, he thought, had been laid upon a sort of implied opposition between Scottish and English history. He held very strongly that anything like a neglect of Scottish history in Scottish schools was discreditable. There was another kind of history to which he thought more attention should, as far as possible, be paid, and that was the study of what he called the general history of the progress of the world.

Mr. George Fenton (Aberdeen), President of the Educational Institute of Scotland, delivered an address before the members of the Institute in Edinburgh (January 15) upon "Recent Educational Changes." Discussing the advantages and disadvantages arising from our new system of school organization, he pointed out that the reins would require to be slackened somewhat, and preparatory higher work be given within easier reach of home up to or near the intermediate standard, if every pupil who possessed the intellectual endowment, but not the money, was to have the chance of pressing towards the mark of the high calling for which he was qualified and destined. The complete abandonment of individual examination in the elementary school, he declared, had resulted in a looseness, an incoherence, and an indefiniteness of aim and purpose, and its reintroduction in a modified form seemed necessary in order to secure thoroughness and exactness of work. Two classes of objectors he sympathized with. There were those who had suffered from the fact that in many large schools it had been the custom to give the best pupils to subservient favourites and the worst to the honest, upright, and strenuous worker, who lacked the ability to flatter his superiors and carry tales about his equals. Again, many Inspectors were not fitted to examine. The experience of not a few as teachers was *nil* or next to it. The Government demanded ten years' teaching as a *sine qua non* for a first-class certificate. Yet some men had been appointed Inspectors who, on visiting an evening school, had been mistaken for pupils seeking enrolment! These appointments should only be given to men and women who had given meritorious service in the public schools and shown that they possessed the art of teaching with marked success. The elementary schools were understaffed. Pupils between the ages of seven and fourteen required teachers of the highest ability, best training, and ripest experience, but the salary inducements of the present day would not attract men and women of the requisite calibre. The method of training teachers had undergone a revolution, but it required considerable modification. The mental equipment was to be very much better, but the professional training must be improved. At present the whole work of every school in a training centre is being disorganized on behalf of the students. This cannot go on. He suggested that each centre should have attached to it a demonstration room or rooms where model lessons should be given by the most expert teachers that the centre possessed in each subject of the ordinary curriculum. Criticism lessons by the students were also essential. In addition to that, short periods of intensive teaching practice in the public schools were advisable, so that the student might see not fragments, but the whole work of a class, and be held responsible for their share in it. The future was full of hope for teachers, but for the nation there was a task which would strain her energies, resources, and skill to the uttermost.

UNIVERSITIES AND COLLEGES.

(From our own Correspondent.)

Cambridge.

The term is still young. According to the Calendar, we should have met on Friday, January 14; but the authorities very wisely decided that it would be better to postpone the arrival of the younger bloods till after the decision of the borough election. Thanks to the courtesy of the Mayor of Cambridge, the election was duly held on Saturday, the 15th, and the following Monday became the first day of full term. Even the horrors of an election are preferable to the drab dullness of a Cambridge Lent Term. The streets, at any rate, have been enlivened by the free display of party colours, and much amusement has been created by the fact that the tie selected by one of the parties is identical with that which distinguishes one of our most select and dignified clubs.

The idea of extracting single lectures or short courses from distinguished men on topics which they have made their own is rapidly extending. Dr. M. A. Stein has discoursed on "Explorations in Central Asia," while Signor Antonio Cippico is beginning a course of lectures on Dante's "Inferno," under the auspices of Dr. Braunholtz, the University Reader in Romance. Dr. Verrall, as Clark Lecturer at Trinity, is down for a course on Tennyson, and is sure of a crowded attendance and an enthusiastic audience.

There are further changes to be made in the "Little-go" for the benefit of our Oriental brethren. Arabic, Chinese, and Sanskrit have for some time been admitted as substitutes for Latin in the case of natives of Asia, and now the intention is to enable Burmese students to take Pali, the classical language of the Burman. Nobody cares much about the "Little-go" now compulsory Greek has practically gone, and a career of freedom and irresponsibility is opened to the freshmen. The Director of Public Instruction in Burmah has pointed out that the substitution of Pali for Latin will enable the Burmans to become affiliated students here. Cambridge is fast becoming cosmopolitan, not to say kaleidoscopic.

The re-election of Mr. Butcher and Mr. Rawlinson was, of course, certain, and even their political opponents read with some relish the tasteful joint addresses in which they asked for support and gave thanks for their return. Mr. Butcher, it is said, can read Irish as well as he can write English.

There was a certain amount of dissatisfaction felt last term at the class lists of one of the Specials—Law, to wit. The standard appears to have been somewhat raised. If a similar movement upwards had taken place elsewhere, no one would have grumbled, but the budding lawyers do not care to be the firstfruits of an innovating policy. The Special in military subjects is now an established fact, and promises to be popular. It will undoubtedly draw to Cambridge many candidates for commissions in the army.

The Boat Race is fixed for the Wednesday before Easter: it is said that this is the only possible date. At present there are five old Blues in residence and available—J. B. Rosher, E. G. Williams, G. E. Fairbairn, G. A. Thomson, and T. A. Arbuthnott. The vacant places will probably fall to F. E. Hellyer (of Winchester and Trinity), C. P. Cooke (of Trinity Hall), and C. M. Stuart (of Trinity Hall). The last-mentioned will, in all probability, have a good trial at stroke, and, in default of his success, G. E. Fairbairn or G. A. Thomson would make a good choice. E. S. Hornidge (of Trinity Hall) could also row if there was serious need for his returning to the boat. Our prospects at Association football look bright. But it is a gloomy term for all that.

London.

At a meeting of Convocation (January 14) Sir Albert Rollit drew attention to the position and action of the University in relation to the Royal Commission on University Education in London, and moved a resolution urgently requesting its standing committee to take all

proper and possible means to impress upon the Royal Commission, by oral evidence and otherwise, the feeling of Convocation that the present general character of the University should be maintained with a full and fair regard to both its external and internal sides, while making every proper provision for the development and increased utility of the University as a whole and of each of its sides and departments, including opportunities for post-graduate study and research. The motion was seconded by Dr. Russell Wells and carried unanimously, with the addition that the resolution stood referred to the standing committee with power to act. In the discussion great dissatisfaction was expressed with the non-compliance by the Royal Commission with the wishes of the University.

Leeds.

THE Annual Report for 1908–9 contains an interesting review of the continued progress of the University. The work of the University has continued to expand, the number of registered students and the amount of their fees having again exceeded those of any preceding year. Great satisfaction is expressed at the endowment of a Professorship of Fuel and Metallurgy by the subscription of £10,000 as a memorial to the late Sir George Livesey. It is intended to introduce in the Leather Industries Department further equipment for the instruction of students in the most approved methods of manufacture, and Dr. Edmund Stiasny, of Vienna, who has had special experience, practical and scientific, has been appointed Assistant Professor in that department. The day classes were attended by 932 registered students, as compared with 901, and the evening classes by 233 students, as compared with 208 in the previous session. Standards of work, too, are steadily rising. The arrangement entered into with the City Education Authority, whereby students are not admitted to the evening instruction of the University unless they have received adequate preliminary training, is working excellently. The number of students in attendance, which, naturally, was greatly reduced on the first imposition of a test of some severity, is now steadily increasing, and the quality of the work is much higher than in bygone years. Courses of study in preparation for University degrees were followed by 442 students, of whom 408 were preparing for the Leeds degrees.

Edinburgh.

THE Annual Report for 1909 gives the total number of matriculated students (including 594 women) as 3,322. The additions to the University Library number 5,121. The recataloguing of the Library having been finished in 1906, the question of printing the catalogue will have shortly to be considered. In the meantime funds are scarcely available for the purpose. Many interesting gifts for the endowment of lectureships, to the library, and for the supply of apparatus are recorded.

German Universities.

THE number of matriculated students at the German Universities during the winter session has been returned as 52,456, an increase of 3,739 since the corresponding period in 1908. Of these Berlin has 9,249, Munich 6,537, Leipsic 4,761, Bonn 3,652, Breslau 2,405, Halle 2,393, Göttingen 2,230, Freiburg 2,167, Strasburg 1,995, Heidelberg 1,934, Munster 1,906, Marburg 1,878, Tübingen 1,760, Jena 1,436, Würzburg 1,424, Königsberg 1,367, Kiel 1,290, Giessen 1,261, Erlangen 1,121, Greifswald 930, and Rostock 707.

The increase in the number of women students continues. There were 1,856 as compared with 1,108 in the previous winter. The favourite Universities are the following: Berlin with 638, Munich with 183, and Göttingen with 160; then follow Heidelberg with 142 and Bonn with 135. The number of *Hospitantinnen*—*i.e.*, non-matriculated students attending courses of lectures—shows an advance from 1,772 to 1,928.

The foreign matriculated students at the German Universities number 4,409, an increase of 332 since last winter. Of these 1,349 are in Berlin, 749 in Munich, 618 in Leipsic, 278 in Halle, and 211 in Heidelberg. There is an increase in the number studying medicine, philosophy, philology, and history, while other subjects show a slight decrease. There are 1,858 students from Russia, 792 from Austria-Hungary, 332 from America, 302 from Switzerland, 186 from Bulgaria, 184 Asiatics, 142 from Great Britain, and 116 from Rumania.

American Universities.

PROF. OSGOOD, of Columbia University, has communicated to the *Athenæum* some statistics relating to the number of students attending the chief American Universities. Of twenty-eight representative Universities, the following are the most popular, the summer session of 1909 being included in each instance: Columbia, 6,132; Harvard, 5,558; Chicago, 5,487; Michigan, 5,259; Cornell, 5,028; Pennsylvania, 4,857; Illinois, 4,502; Minnesota, 4,351; Wisconsin, 4,245; and California, 4,084. All these, except Minnesota, show an advance on the figures of the previous year.

CURRENT EVENTS.

Fixtures.

AT the Members' Meeting of the College of Preceptors, on February 16, Mr. J. L. Paton, M.A., will read a paper on "Cross-fertilization in Schools."

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ON February 10 Prof. Adams will commence, at the College of Preceptors, a course of twelve lectures to teachers on "Rational and Experimental Psychology as applied to Education."

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M. BARLET will address the Société Nationale des Professeurs de Français en Angleterre at the College of Preceptors on February 26, at 4 p.m. Subject: "Scènes et Récits."

* * *

PROF. ADAMS will continue his Second Course on February 5, 12, 26, and March 5, 12, 19—Saturday mornings, at 11.30, at the London Day Training College, Southampton Row, W.C. Subject: "The Principles of Class Teaching, with Illustrations from the Work of Present-day Schools." Open free to teachers. Cards of admission from Prof. Adams. Give full name and address and also name and address of school where applicant teaches.

* * *

THE Annual Conference of the School Nature-Study Union and a Publishers' Exhibition will be held at the London Day Training College, Southampton Row, W.C., on February 19, at 3 p.m. Prof. J. R. Ainsworth Davis, M.A., F.C.P., Principal of the Royal Agricultural College, Cirencester, will lecture on "Flowers and their Visitors." Illustrations by lantern slides.

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DR. A. MORLEY DAVIES, A.R.C.Sc., of the Geological Department, Imperial College of Science and Technology, will lecture before the Geographical Association at the London Day Training College, Southampton Row, W.C., on February 25 at 7.45 p.m. Subject: "The Illustration of Types of Land Forms from Ordnance Survey Maps." Non-members (unless introduced by a member), 1s. each.

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PROF. SIR FREDERICK BRIDGE will continue his course of lectures on "Purcell Studies," at the University of London, on February 2, at 5 p.m. Mr. E. A. Newell Arber, M.A., F.L.S., F.G.S., will continue his course on "Evolutionary Aspects of Palæobotany," at University College, on February 1, 8, 10, 17, 22, 24, and March 1, at 4.30 p.m. Prof. Garwood will give a course of three lectures on "The Geology and Physiography of Arctic Europe," at University College, on February 24, March 3 and 10, at 5 p.m. All courses open free, the first by ticket, obtainable from the Academic Registrar, the others without ticket.

* * *

THE twelfth Annual Meeting of the members and friends of the Moral Education League will be held at Essex Hall, Essex Street, Strand, on February 21, at 8.15 p.m. Miss

Margaret McMillan will deliver an address on "The Place of Imagination in Moral Education." Any one interested may obtain cards of invitation from the Assistant Secretary, Moral Education League, 6 York Buildings, Adelphi, W.C.

Honours.

THE University of Cambridge has conferred the honorary degree of Sc.D. upon Dr. Mark Aurel Stein, explorer; and the honorary degree of M.A. upon the Rev. John Roscoe, missionary and anthropologist.

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OXFORD CONVOCATION has conferred the degree of M.A. by decree of the House upon Surgeon-General A. F. Bradshaw, C.B., Worcester College.

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THE REV. DR. DRIVER, Regius Professor of Hebrew at Oxford, has had his portrait presented to him by the Vice-Chancellor on behalf of the subscribers. Mr. Briton Rivière, R.A., is the artist.

Endowments and Benefactions.

THE University of Glasgow has accepted the offer of the Executive Committee formed to aid in founding a Chair of Scottish History and Literature in the University to give £200 a year for three years for two Lectureships of £100 each—one on Scottish History, the other on Scottish Literature.

* * *

MRS. CATHARINE L. H. WEDDERBURN OGILVY, of Kilry, Forfarshire, has bequeathed £2,000 (or such larger sum as would be necessary) to the University of Glasgow for the foundation of bursaries or scholarships, £30 a year each, for students connected with certain local parishes.

Glasgow University has received a gift of the MacLagan Collection of Celtic Manuscripts from Mr. MacLagan Wedderburn, W.S., Edinburgh.

* * *

THE LATE DR. LUDWIG MOND left, on the death of his wife, £50,000 to the Royal Society of London, and £50,000 to the University of Heidelberg, for the endowment of research in Natural Science, more particularly in Chemistry and Physics; and £20,000 to the Munich Akademie der bildenden Künste for the promotion of Sculpture and Painting.

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MR. JAMES B. ANDREWS, of Hyères and London, has bequeathed £5,000 to the Cambridge Anthropological Museum.

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MRS. NORMAN-ROBINSON has offered to found a Scholarship in Craniology and Anthropometry, tenable at University College, London, in memory of the late Dr. R. C. Benington.

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THE Gilchrist Trustees have provided two scholarships in Oriental Languages in the University of London. Regulations will be issued at a later date.

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THE daughters of the late Dr. Whitley Stokes have presented to University College, London, their father's library of Celtic literature.

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THE Carpenters' Company have given £500 to the fund in connexion with the incorporation of King's College in the University of London.

* * *

A BUST of the late Mr. Augustus Warr has been presented to Liverpool University by the Lord Mayor on behalf of the subscribers.

MR. MARTIN RYERSON, President of the Board of Trustees of Chicago University and donor of the Ryerson Laboratory, is giving £200,000 to erect a physical laboratory in the University.

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MRS. RUSSELL SAGE, widow of the famous railroad and telegraph capitalist, has given to Yale University £130,000, to enable it to acquire land for developments.

* * *

MR. HENRY PHIPPS, of New York, founder of the Phipps Institute for Tuberculosis Research, in Philadelphia, has given £100,000 to the University of Pennsylvania, to fight tuberculosis. A couple of years ago he gave a like sum to Johns Hopkins, to found a psychiatric clinic.

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LEADING citizens of Bombay have contributed a sufficient sum to render it possible to begin the establishment of a central Institute for the teaching of Science.

Scholarships and Prizes.

DOWNING COLLEGE, Cambridge, offers entrance scholarships for competition on March 1 and subsequent days. Subjects: Law, History, Natural Science, Classics, Mathematics, and Mechanical Sciences. Particulars from Mr. Henry Jackson, Tutor of the College.

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MISS MARY HIGGENS, of Glidden, Hammelton Road, Bromley, Kent, has left the residue of her estate (say £10,000) to Girton College, for the foundation of scholarships of £40 a year each.

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GOLDSMITHS' Exhibitions at Cambridge University are vacant. Examination, April 26–28. Information from Sir Walter Prideaux, Goldsmiths' Hall, London, E.C.

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LONDON UNIVERSITY offers the Gilchrist Studentship for Women, £100 for one year. Open to graduates in honours preparing for a profession. Apply (with three testimonials and three references, and statement of profession and of the institution where candidate intends to study) to the Principal by February 28.

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THE Law Society offers for competition, in June next, five studentships of £40 a year each, renewable for a second year, and in certain cases for a third year. Regulations on application at the office of the Law Society, Chancery Lane, W.C., or by letter to the Principal and Director of Legal Studies.

* * *

THE Grocers' Company have established the following scholarships, open to children of freemen: Two, of 15 guineas each, to the City of London School for Boys; two, of 15 guineas each, to the City of London School for Girls; two, of 15 guineas each, to the Guildhall School of Music; and one, of £60, to the City and Guilds Central Technical College, tenable for three years.

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THE Education Department of the London County Council offers fifteen scholarships in Science and Technology this year, open to persons engaged in industrial pursuits, who have attended evening classes at polytechnics. Also 180 Evening Exhibitions in Science and Technology, each consisting of payment of tuition fees, with a grant of £3 a year for two (and possibly three) years. Particulars from Mr. R. Blair, Education Officer, L.C.C. Education Offices, Victoria Embankment, W.C.

Under the scholarship scheme of the Middlesex Education Committee for 1910, free places at secondary schools will be awarded to 170 boys and 139 girls. Thirty junior scholarships will be awarded—fifteen to boys or girls in attendance at an elementary school, and who undertake to become teachers, and fifteen to boys or girls in attendance at a secondary school maintained or recognized by the Committee. Six trade scholarships will be awarded to boys in July, available at day trade schools. Intermediate County Scholarships, of the value of £25 per annum, will be offered to not more than seven boys and four girls. The Committee may award a sum of £400 in Senior County Scholarships, and are prepared to award not more than forty-six scholarships at the University of London Day Training College, New Cross. Ten free places are to be awarded to women at the Maria Grey Training College, and not more than eight holiday exhibitions to teachers of the secondary schools. The successful candidates in the latter section will be awarded £2 per week (maximum £12), together with their actual travelling expenses, not exceeding £4.

Appointments and Vacancies.

Mr. Thomas Case, M.A., President of Corpus Christi College, Oxford, has resigned the Waynflete Professorship of Moral and Metaphysical Philosophy, which he has held since 1889.

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Mr. W. Aston, M.A., Demonstrator in Physics, Birmingham University, has been appointed Assistant to Sir J. J. Thomson in the Cavendish Laboratory, Cambridge. He is succeeded by Mr. E. E. Fournier d'Albe.

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In Manchester University, Mr. Reginald Hackforth, B.A. Cantab., has been appointed Assistant Lecturer in Classics; and Mr. J. H. Köppern, of the University of Freiburg in Baden, temporary Assistant in Zoology.

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The Rev. Dr. Bertram Pollock, Head Master of Wellington College, has been appointed Bishop of Norwich.

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Mr. E. Marsden, B.Sc. Manc., who has been working under Prof. Rutherford on investigations into radioactive problems, has been appointed Demonstrator in the Physics Department at the East London College.

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Applications for the Professorship of English Literature in University College, Dublin, should be lodged with the Secretary to the Commissioners, National University Buildings, Earlsfort Terrace, Dublin, by February 15. Three testimonials and three references. £500.

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In the National University of Ireland, Mr. John M. O'Sullivan, M.A., Ph.D., has been appointed Professor of History; Mr. C. F. Doyle, K.C., has been transferred from the Chair of Roman Law to the Chair of Law of Property and Law of Contracts, vacated by the appointment of Mr. D. F. Browne to the County Court Judgeship of Kerry; Mr. James A. Murnaghan, LL.D., has been appointed Professor of Jurisprudence and Roman Law; Dr. M. W. Crofton, Lecturer in Special Pathology; Miss M. Degani, Lecturer in Italian and Spanish Languages and Literatures; and Sir Thomas Drew, LL.D., President of the Royal Hibernian Academy, has accepted the Professorship of Architecture.

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At the National Physical Laboratory, Mr. G. W. C. Kaye, B.A. Cantab., D.Sc. Lond., A.M.I.E.E., formerly Demonstrator in Physics at the Royal College of Science and Sub-Lector in Physics at Trinity College, Cambridge, has been appointed an Assistant in the Metrology Division; and Mr. Harris Booth, B.A. Cantab., and Mr. James H. Hyde, Whitworth Exhibitioner in Engineering, with five years' experience at the Great Eastern Railway Company's Works, have been appointed Junior Assistants in the Aeronautics Division.

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Dr. de Mouilpied, Assistant Lecturer in Chemistry, Liverpool University, has been appointed an Inspector of Schools under the London County Council.

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Mr. J. F. Rees, B.A., has been appointed Assistant Lecturer in History in the University College of North Wales.

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Mr. H. C. F. Finlayson, M.A. Aberd., has been appointed Professor of Political and Economic Science in the newly established Imperial University of Peking.

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The Rev. Llewellyn D. Bevan, D.D., of Collins Street Church, Melbourne, formerly of Highbury Quadrant Church, has been appointed Principal of the Parkin Training College, Adelaide.

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Dr. A. B. Young, M.A. Cantab. and Cape, Ph.D. Freiburg, Christ's College, Finchley, has been appointed Senior Modern Language Master at Wakefield Grammar School.

Literary Items.

Messrs. A. & C. Black are publishing "Studies in the Teaching of History," by Mr. M. W. Keatinge, M.A., Reader in Education in the University of Oxford.

They promise immediately a translation (for the first time in English) of Spinoza's "Short Treatise on God, Man, and his Well-being," by Prof. A. Wolf, who supplies also an introduction and a commentary.

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Messrs. Longmans promise, at an early date, "A History of Wales from the Earliest Times to the Edwardian Conquest," by Prof. John Edward Lloyd.

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Messrs. Macmillan will soon publish a volume on "Shakespeare's Roman Plays and their Background," by Prof. MacCallum, of Sydney.

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Mr. Fisher Unwin is publishing the first of three volumes on "The American People: a Study in National Psychology," by Mr. A. Maurice Low, who has for many years been the Washington correspondent of the *Morning Post*. The first volume comes down to the time of the Revolution.

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Messrs. Putnam will publish this spring "Education of the Child," by Ellen Key, a special issue of a portion of the author's recent book, "The Century of the Child"; and "King Canute the Great," by Mr. Laurence M. Larson, in the "Heroes of the Nations" Series.

General.

The Senate of the University of London has decided to institute a Higher Diploma in Pedagogy for internal and external students. Regulations ready shortly.

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COLLEGE OF PRECEPTORS.

HALF-YEARLY GENERAL MEETING.

THE ordinary Half-Yearly General Meeting of the members of the Corporation was held at the College on Saturday, January 22.

The SECRETARY having read the advertisement convening the meeting, Prof. ADAMS was appointed Chairman.

The Report of the Council was laid before the meeting and was taken as read, a copy having previously been sent to every member of the College. It was as follows:—

REPORT OF THE COUNCIL.

The Council beg to lay before the members of the College the following Report of their proceedings during the past half-year:

1. The Thirty-seventh Series of Lectures for Teachers on the Theory and Practice of Education, which commenced on the 4th of February and ended on the 16th of December, comprised a Course of Twelve Lectures on "The Psychological Bases of Teaching and Education," and a Course of Twelve Lectures on "Practical Problems of the Classroom." The two Courses were given by Prof. John Adams, M.A., B.Sc., F.C.P.

2. At the Summer Examination of Teachers for the College Diplomas, which was held in the first week in September, the number of candidates who presented themselves was 323. For the Christmas Examination the number of entries is 508. During the past half-year the Diploma of Licentiate has been conferred on 26 candidates and that of Associate on 91, who had satisfied the prescribed conditions.

3. For the Christmas Certificate and Lower Forms Examinations, which were held in the second week in December, the number of entries was about 6,000. The Professional Preliminary Examination for Certificates, recognized by a number of professional bodies, was held in the second week in September, and was attended by 213 candidates.

4. The Council have conducted during the past half-year the Examination of two Schools by Visiting Examiners.

5. Meetings of members were held in October and November. At the October Meeting a Discussion on "The Relations between Heads of Schools and Parents" was opened by Mr. W. Campbell Brown, M.A., F.C.P., and at the November Meeting a Lecture on "The History of Education as a Professional Study" was delivered by Prof. J. W. Adamson, B.A. Reports of the Meetings have been published, as usual, in *The Educational Times.*

6. During the past twelve months about 1,300 volumes have been issued to members. A second Supplement to the Catalogue, comprising the additions made to the Library during the past four years, is now in the press, and will be issued to the members in the early part of next year.

7. During the past half-year seven new members have been elected, and four holders of the College Diplomas have been admitted to the privileges of membership under Section II, Cl. 5, of the By-laws. Notice has been received of the withdrawal of four. The Council regret to have to report the death of the following members:—Mr. R. Reed, A.C.P., Mr. J. Brand, Mr. E. Durham, and Mr. J. R. Wild. The names of seven members have been removed on account of non-payment of subscriptions.

8. Notwithstanding a diminution in the number of examinees, the financial result of the operations of the College during the year is satisfactory, the balance carried forward being a little larger than the balance at the commencement of the year.

9. On the 13th of November, through the instrumentality of the Federal Council, a Conference of Representatives of a number of Associations of Teachers, including the College of Preceptors, was held at the Clothworkers' Hall under the presidency of the Master of the Rolls. The Conference adopted, with practical unanimity, a series of resolutions having for their object the constitution of a Registration Council and the re-establishment of the Teachers' Register. These resolutions have been submitted to the Board of Education, and it is hoped that the Board will, without delay, take steps for the formation of a Registration Council.

10. The Council have given long and earnest consideration to the question which was referred to them by the General Meeting in January, 1909—viz., "whether, by any methods, the work and usefulness of the

College may be increased"; but the Council are not at the present moment prepared to recommend any new method of enlarging the sphere of usefulness of the College.

With reference to Paragraph 8, the TREASURER observed that the accounts showed that the receipts from the Certificate and Lower Forms Examinations were less than last year, and that there was a corresponding decrease in the expenses incurred on this account. On the other hand, there was an increase in the entries for the examinations which were conducted by the Council on behalf of the Newfoundland Council of Higher Education, and consequently both the receipts and expenditure in connexion with these examinations showed an increase. Thus, a shrinkage in one field of work was, to some extent, compensated by extension in another. It might be assumed that the Council would neglect no opportunity of undertaking new work if it could be shown to be of service to the cause of education. He was glad, as Treasurer, to be able to state that the present financial position of the College was satisfactory. During the past five years a sum of £900 had been added to the Reserve Fund, and, although it was true that in the last three years the sum allocated to this fund had been small, it must be remembered that financial affairs, like other matters, including examination entries, were subject to fluctuations.

With reference to Paragraph 10, Dr. MAPLES moved the following resolution:—

> That Clause 10 be referred back to the Council for further consideration, and that the Council be requested at the same time to consider the desirability of an effort being made to obtain an amended Charter with a view to the work and usefulness of the College being developed and extended.

He recognized that the College had done valuable work in the past; but he was of opinion that, unless its energies were devoted to new activities, its work and influence would rapidly decline. He thought that the Treasurer had underrated the significance of the decrease in the number of entries for the examinations. In the case of the Certificate Examinations this decrease had been going on for some years, owing partly to the regulation of the Board of Education which prohibited the entry of pupils under a certain age, and he saw no present prospect of a turn of the tide. Another point was the question of the membership. It was, perhaps, not known to many of those present that a little more than one half of the members of the College were non-paying members, elected under the by-law which admitted holders of the College diplomas to the privileges of membership without payment. He did not object, and was glad to see them as members; but the interest they took in the College was, in most cases, limited to borrowing books from the library and receiving monthly "The Educational Times." Dr. Maples went on to criticize the conduct of the affairs of the College by the Council during the past four years. He expressed the opinion that the reports of the Council for those years showed a very meagre output of work, and that the methods of carrying on the business of the Council were unsatisfactory. In support of his contention, he stated that the committee appointed, in February last, to consider the question of the Deanship had not presented its report until that day, and that they had not met till after the summer holidays. He also stated that, although the report of "The Educational Times" Committee was referred back several months ago, no further meeting of the Committee had yet been summoned. So far as he knew, no tenders had been obtained for printing. The Council had omitted to tell them, in the Report, that during the past year it had had under its consideration the case of a private school which had been refused recognition by the Board of Education. A committee of the Council was appointed to inquire into the case, and the report of the committee convinced the Council that the school was deserving of recognition. What had the Council done? It had made a protest, which had been put on the file of the Board of Education, and that was all. He only gave that as an instance of the value of the work the Council had done during the past year. The College was the only body connected with secondary education that had any funds at all, and it would be a most valuable centre for the secondary teachers for whom it was primarily intended. But, before such a change could be brought about, the Charter would have to be altered. It was thought by some that no Government would grant an amended Charter, and an opinion to that effect had been expressed by an eminent counsel; but he (Dr. Maples) believed that such a thing was possible, and that in any case it was worth while to endeavour to make this College the real rallying place for secondary teachers. There were enormous difficulties in the way. Suggestions that had been considered by the Council during the past year had been rejected on the ground that they involved risk of the loss of the Charter. Undoubtedly there was a risk, but in his opinion there was a far greater risk of the eventual extinction of the College as an educational institution unless the members united to make some serious effort to put it upon a new foundation and to give it, what he believed there was before it, a real chance of a new era of useful educational work.

Mr. KELLAND seconded the resolution.

Mr. BARROW RULE moved the following amendment to the resolution:—

> That the Council be asked to continue their consideration of the question referred to them by the General Meeting in January, 1909: viz, "Whether, by any methods, the work and influence of the College may be increased."

He remarked that the major part of the speech of the mover of the resolution had been occupied with complaints against the conduct of the affairs of the College by the Council, and he expressed surprise that Dr. Maples, who was a member of the Council, should have departed from the accepted method of procedure, and, instead of laying his grievances before the Council, should have reserved them for the General Meeting. It was not fair to suggest that the reports of the proceedings of the Council represented the whole of the work done by the Council, and he urged that it was neither necessary nor courteous to bring forward a resolution in the terms proposed by the mover. The Council were always willing to give respectful attention to any suggestion for the extension of the influence and work of the College, and paragraph 10 of their report did not state that they would not continue to consider the question that had been referred to them, but simply that at the present moment they were not prepared to recommend for the consideration of the members of the College new methods of enlarging its sphere of work. He hoped that members of the College would endeavour to assist the Council in promoting the interests of the College by forwarding any suggestions for improvement that might occur to them. He thought that Dr. Maples was unduly pessimistic in his view of the prospects of the College, and that he had formed a mistaken opinion as to the limitations of the Charter. A perusal of the Charter showed that not only was the College empowered to perform certain specific duties—*e.g.*, the training, examination, and certification of teachers—but that it was also authorized to do anything "calculated to advance the cause of education or the interests of the scholastic profession, particularly within England and Wales." Surely such provisions were wide enough to cover any activities which an association of teachers might legitimately attempt. He considered it would be an act of extreme folly to run the risk of losing the Charter in the way proposed by Dr. Maples and thus endanger the very existence of the College.

Mr. SOUTHEE, in seconding the amendment, expressed the opinion that the Charter was so valuable to the College that no consideration ought to induce the members to part with it. He noticed with regret that, according to an article in "The Educational Times," only ten private schools were included in the first List of Efficient Secondary Schools published by the Board of Education, and he suggested that this was perhaps a matter in which the College might help private schools.

Mr. WALDEGRAVE opposed the amendment as being too indefinite to be dealt with in a practical manner. According to Dr. Maples, the course the College was pursuing must end in destruction, and in the circumstances he considered the resolution a reasonable one. It was not proposed to upset the Charter, but simply to ask the Council to consider the advisability of an effort being made to obtain an amended Charter It was true that good work had been done in the past, but members had to deal with the position as it stood, and to secure that good work should be done in the future. He agreed with Dr. Maples that it would be desirable to make the College, if possible, a rallying place for secondary teachers.

Mr. WILSON considered that it would be a sterile proceeding to invite the Council to continue the consideration of a question which had engaged their attention for a whole year. The Council had found that, within the limits of the Charter, they had no new methods to bring forward for the advantage of the College. Dr. Maples seemed to have no appreciation of the effect of moving for a new Charter, and no knowledge of what had been done in the

past with regard to this matter; nor did he explain the difficulties that had been encountered by the College and other Societies in attempts to obtain supplementary or amended Charters. In the case of the College, the Council had undoubtedly fulfilled all the conditions that were set down affirmatively in their Charter, and there had been, in fact, a remarkable development and extension of the work originally projected by the founders of the College. Accordingly, it could not be contended that there had been negligence on the part of the Council in carrying out the objects of the Charter which they already possessed, and he failed to see what reason could be advanced in support of an application for a new Charter. It was quite hopeless even for a majority to appeal to the Privy Council for a new Charter when all the objects of the old Charter were being carried out, and there was no reason why even a small minority should not be left with the whole of the funds to carry on the life of the body. Mr. Wilson proceeded to illustrate his argument by reference to the case of the Chemical Society, which, a few years ago, desired to apply for a supplemental Charter, and which was advised that any such application, if opposed by even a small minority, would not succeed. If application were made for a new Charter, it would be necessary to state, in clear terms, the objects aimed at; but Dr. Maples, although he might have some floating ideas about a supplemental Charter, had never condensed them into a concrete and detailed scheme.

The Dean observed that the remarks of Mr. Wilson with reference to the precedent of the Chemical Society were very interesting, as showing the difficulty there would be in obtaining a revised Charter. Not very long ago one of the ablest members of the Council entertained the idea of making the College a centre for all secondary teachers, and he drew up an elaborate scheme by which a number of bodies were to be combined with the College to make a great central Association. A case was submitted to counsel, who, in the most emphatic way, expressed the opinion that the College had no chance of obtaining a revised Charter of that kind. That project had a definite object, but they were not informed as to the object of Dr. Maples' proposal. Dr. Maples had been a member of the committee appointed to consider the question of extending the work of the College; but he did not offer any fruitful suggestions. He thought, therefore, it would be better not to pass this resolution, because the surrender of a Charter was a very serious matter, especially as the Board of Education appeared to consider that voluntary associations of schoolmasters, such as the Head Masters' Association and the various Assistant Teachers' associations, were not for the public benefit. Apparently, the Board wanted to have as much power in their hands as possible; therefore they were naturally opposed to the existence of bodies which might stand in the way of their policy.

Mr. Addis pointed out that, in speaking of the College as a rallying point for secondary teachers, there was some danger of misunderstanding. There were many other associations of secondary teachers, and, as these all had definite objects and aims, he failed to see how the College of Preceptors was ever going to become a rallying point for all secondary teachers. Rather he would urge that, if any definite line was to be adopted, the College should throw its whole weight into the support of private schools. Although he had had nothing to do with private schools, he looked with sympathy upon their position, which was being undermined in all directions. He did not see why such a state of things should exist, as many private schools were doing excellent work.

Mr. Charles said that he intended to vote in favour of the amendment for the reasons given by the Dean. He agreed with Mr. Addis that they should interest themselves more in the position of the private schools. When the College of Preceptors should cease to advocate the cause of the private school, he did not quite see what ground it would have for further existence. The main difficulty the College had to contend with was the paucity of candidates for membership. Instead of joining the College, secondary teachers preferred to join sectional associations.

Mr. Milne considered that, as the College was started by private-school masters, it should concern itself with private enterprise. In the past, the College had done invaluable work for private schools, and while it did that it was well supported. The case Dr. Maples had mentioned had been before the Council for the last five months. It was that of a ladies' school, which, in his opinion, had been partially and most unfairly treated by the Board of Education. If the work and influence of the College were to be extended, the Council must not be content with merely addressing the Board of Education, but take vigorous steps to protect the rights of private schools. When private-school masters and mistresses understood that the College was prepared to uphold their interests and their rights, there would be an increase in the membership.

The Treasurer said Dr. Maples had brought a charge of negligence against the Council, a body of which he was himself a member, and, while the ostensible object of his speech was the reform of the College, it contained far too much of virulent attack and far too little of useful suggestion; it was destructive and not constructive. They were invited to destroy the Charter, for until it was surrendered a new Charter could not be obtained. Very shortly after the instruction given at last year's meeting a committee was formed. Dr. Maples was a member of this committee, and offered a number of suggestions, all of which were discussed very thoroughly, but none was found capable of being carried out to the advantage of the College. One of them was that the College should supply funds to enable the Federal Council to establish a scheme of registration without State sanction: an undertaking of a very costly nature, and of a kind that the College should not contemplate. The committee had also considered other suggestions, of which he would mention two. The first was a proposal to develop the existing system of evening lectures for teachers into something like a complete course of evening training. With regard to this suggestion, it was felt that there was little prospect of success in view of the existing provision for training made by local education authorities. The other suggestion to which he had referred was that the scope of the College Benevolent Fund should be extended so as to cover cases of temporary disablement through illness or accident. In discussing this question, the committee spent a considerable amount of time. He himself corresponded with Sir Edward Brabrook concerning the matter, and the committee secured the services of another actuarial expert in drafting a scheme. It was found, however, that the funds of the College would not permit benefits to such an amount as might prove an inducement to teachers to become members of the College, and so the Council were reluctantly obliged to abandon the project. The committee had received little assistance from Dr. Maples in their deliberations on this scheme. He had gone into these details because he wished to show that the committee had not been idle, but had worked with an earnest desire to see what could be done to extend the usefulness of the College. The Council were agreed that the College might become a suitable meeting place for the various educational bodies for the purpose of securing agreement in educational matters. The position of the secondary teacher had undergone considerable modification in the last thirty or forty years owing to the changes which had taken place in the relations of the State to education, and the College might render good service in endeavouring to secure unity and cohesion among the members of the profession. It was only by a union of forces that teachers could hope to exercise due influence in the direction of educational affairs.

Mr. Thornton pointed out, with reference to the suggestion that the College should be a rallying place, that any association connected with secondary education always found a welcome here. The institution of the examinations of pupils in schools was not originally contemplated by its founders, and other activities might be pursued without alteration of the Charter.

Dr. Maples said that he had done his best at the College and on the Council to put forward suggestions which might enlarge the influence of the College. Those suggestions had been found to be impracticable because, as he ventured to suggest, each of them carried with it some little risk, and had therefore been rejected. He did not desire that the Charter should be destroyed; all he wished was that whatever committee should be appointed to consider the question should have its hands unfettered. The amendment of the resolution of January last had hampered him in making suggestions to the Council, the effect of the amendment being to prevent the consideration of any proposal which would involve alteration of the Charter, and that was why the words relating to an amended Charter had been inserted in the resolution he had brought forward to-day. He hoped his resolution would be carried; but, should it not be, he would still endeavour, as an ordinary member of the College, to do all he could to promote its usefulness and to obtain for it greater influence than it at present possessed.

On a division being taken, the amendment was carried by a considerable majority.

On the amendment being put as a substantive motion, Mr. KELLAND moved the addition of the words "and to report to the next half-yearly General Meeting." Mr. BARROW RULE accepted this as a rider, and the resolution was then carried in the following amended form:—

> That the Council be asked to continue their consideration of the question referred to them by the General Meeting in January, 1909: viz., "Whether, by any methods, the work and influence of the College may be increased," and to report to the next half-yearly General Meeting.

The Report of the Council, with the accompanying abstract of accounts, was then adopted.

The DEAN then presented his Report, which had been printed and circulated among the members attending the meeting. It was as follows:—

THE DEAN'S REPORT.

IN addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various examinations.

The Christmas Examination of candidates for Certificates took place on the 7th to the 11th of December at 162 Local Centres and Schools. In the United Kingdom the Examination was held at the following places:—Aldershot, Aylesbury, Bamford, Barry (Glam.), Bath, Belper, Bentham, Bewdley, Biggleswade, Birmingham, Blackpool, Bournemouth, Bracknell, Braunton, Brentwood, Bridlington, Brighton, Bristol, Cardiff, Carlisle, Carnforth, Cheadle Hulme, Cheltenham, Clapham, Clevedon, Coleford, Congleton, Crewe, Croydon, Devizes, Doncaster, Durham, Ealing, Eastbourne, Edinburgh, Exeter, Folkestone, Frome, Gosberton, Gravesend, Harlow, Harrogate, Hastings, Hereford, Herne Bay, Holsworthy, Hutton (Preston), Inverurie, Jersey, Kilfinane, King's Lynn, Leeds, Liverpool, London, Lytham, Maidstone, Manchester, Margate, Market Drayton, Middlesbrough, Muswell Hill, Newcastle-on-Tyne, Newport (Isle of Wight), Newport (Mon.), Newquay, Newton Abbot, Northampton, Norwich, Nottingham, Ongar, Pencader, Penketh, Penzance, Plymouth, Portsmouth, Reading, Richmond-on-Thames, Ripley (Surrey), Saham, St. Annes-on-Sea, St. Leonards-on-Sea, Sale, Scarborough, Seaford, Selby, Sevenoaks, Sheffield, Shirley, Shoreham, Southampton, Southend, South Molton, Southport, Southsea, Stratford-on-Avon, Sunderland, Swindon, Taunton, Torquay, Totland Bay, Towcester, Walton (Liverpool), West Norwood, Weston-super-Mare, Weymouth, Wisbech, Woodford, Worcester, Worthing, and York. The Examination was also held at Gibraltar; Malta; Constantinople; Batticaloa, Colombo, and Manepay (Ceylon); Falmouth, Kingston, and Stewart Town (Jamaica); Governor's Harbour (Bahamas); New Amsterdam (British Guiana); St. George's (Grenada); St. Lucia and St. Vincent (B.W.I.); Port of Spain (Trinidad); Cala, Cedarville, Graaff Reinet, Grahamstown, Johannesburg, King William's Town, Klerksdorp, Krantz Kloof, Krugersdorp, Port Elizabeth, Uitenhage, and Umzinto (South Africa); Accra (Gold Coast); Abeokuta and Lagos (S. Nigeria); Nairobi (B.E. Africa); and Lomas de Zamora (Argentine Republic).

The total number of candidates examined (not including 574 examined at Colonial and Foreign Centres) was 3,739, of whom 2,919 were boys and 820 girls.

Taking the Christmas and Midsummer Examinations together, the total number of candidates examined for Certificates during the year (not including those who attended the Supplementary Examinations in March and September) was 7,818.

The following table shows the proportion of the candidates at the recent Examination who passed in the class for which they were entered:—

	Entered.	Passed.	Percentage.
First Class (or Senior)	395	171	43
Second Class (or Junior)	1,362	778	57
Third Class	1,543	1,207	78

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (439 in number) who entered only for certain subjects required for professional preliminary purposes.

The number of candidates entered for the Lower Forms Examination (not including 217 examined at Colonial and Foreign Centres) was 1,380—823 boys and 557 girls. Of these 1,104 passed, or 80 per cent.

At the Supplementary Examination for First and Second Class Certificates, which was held on the 7th to 9th of September in London and at the following Provincial Centres—viz., Birmingham, Bristol, Leeds, Liverpool, and Manchester—213 candidates presented themselves. The number of candidates examined at these Supplementary Examinations during the year was 542.

The Summer Examination of Teachers for the College Diplomas took place on the 30th of August and five following days in London and at the following Local Centres:—Birmingham, Bolton, Bristol, Kirkwall, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Plymouth; and at Dinapore, Jubbulpore, Lahore, Nagercoil, and Ootacamund (India); St. John's (Newfoundland); St. Lucia; Harrismith and Umzinto (S. Africa); Bonny (S. Nigeria); and New Amsterdam (B. Guiana). It was attended by 326 candidates—230 men and 96 women. On the results of this Examination, 26 candidates obtained the Diploma of Licentiate and 90 that of Associate.

The Christmas Examination of Teachers for the College Diplomas took place on the 28th of December to 4th of January in London and at the following Local Centres:—Birmingham, Bristol, Jersey, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Plymouth; and at Gibraltar; Bombay, Calcutta, Meerut, Ootacamund, and Sanawar (India); St. Lucia; Change Islands (Newfoundland); Port Elizabeth (Cape Colony); Lagos; and Freetown (Sierra Leone). It was attended by 479 candidates—325 men and 154 women.

Practical Examinations to test Ability to Teach were held in February, May, and October. At these Examinations 13 candidates presented themselves, and 12 obtained Certificates.

The number of schools examined and inspected during the year under the Visiting Examination and Inspection Schemes (A), (B), and (C) was 8.

The Council have conducted, on behalf of the Newfoundland Council of Higher Education, the Associateship, Intermediate, Preliminary, and Primary Examinations of the Newfoundland Council. The examinations were held at 112 Centres in Newfoundland on the 21st to 28th of June, and the numbers of candidates who were examined in the several grades were as follows:—Associateship, 61; Intermediate, 468; Preliminary, 975; Primary, 1,207.

The Council have conducted, on behalf of the Grenada Board of Education, an examination of teachers for Second Class and Third Class Certificates in School Management.

Mr. WALDEGRAVE wished to enter a protest against the Second Class Book-keeping paper. His own school was principally a commercial school and he paid special attention to the subject. His results were generally good, but the altered character of the paper had had the effect of considerably lowering his average mark. He maintained that it was not fair to the schools to make such an alteration without warning.

Mr. CRICHTON wished to emphasize the protest of the last speaker, and thought that a syllabus of the requirements in book-keeping should be published.

Mr. CARR-VERNON also supported the protest. It was true that the papers were greatly improved by the change in their character, but due notice of the change should have been given. He considered also that the directions at the head of the paper might have been more clearly expressed. As it was, the candidates worked on the lines to which they were accustomed and so found the time too short.

The DEAN remarked that the percentage of passes in Book-keeping was 71 in the First Class and 73 in the Second Class, which was certainly a fair average. The examiner had reported that the general result would have been more favourable but for the fact that the majority of the candidates entirely disregarded the directions at the head of the paper. The Council had under their consideration the drawing up of a syllabus.

The report of the Dean was adopted.

The meeting then proceeded to the election of twelve members of the Council to fill the place of the twelve retiring by rotation, and three auditors.

The CHAIRMAN announced that one of the candidates, Mr. A. E. Dunstan, was not eligible, as he was not a subscribing member of the College.

Dr. MAPLES informed the meeting that, in consequence of the adverse vote that had been given on his resolution, he desired to withdraw his name from the list of nominations of members for the Council.

The CHAIRMAN having appointed Mr. TWENTYMAN and Mr. WALTERS to act as scrutators, the voting papers were distributed and the election was proceeded with. On the scrutators presenting their report, the following were declared to be elected:

MEMBERS OF THE COUNCIL.

Prof. J. Adams, M.A., B.Sc., The London Day Training College.
G. Armitage-Smith, M.A., D.Lit., The Birkbeck College.
Rev. J. O. Bevan, M.A., Chillenden Rectory, Dover.
Rev. J. B. Blomfield, Catford Collegiate School, S.E.
Miss E. A. S. Dawes, M.A., D.Lit., Weybridge Ladies' School.
Prof. W. E. Dixon, M.A., M.D., B.Sc., King's College, Strand, W.C.
T. Hay, M.A., B.Sc., Chelmsford Grammar School.
H. R. Ladell, M.A., 50 Marine Parade, Lowestoft.
A. Millar Inglis, Maidenhead College, Maidenhead.
E. J. Morgan, Castle Hill School, Ealing.
Rev. D. L. Scott, M.A., LL.D., Mercers' School, E.C.
Prof. Foster Watson, M.A., University College of Wales, Aberystwyth.

AUDITORS.

John Bell, M.A., LL.D., 34 Redbourne Avenue, Finchley, N.
H. Chettle, M.A., Stationers' School, Hornsey, N.
A. E. C. Dickinson, M.A., LL.D., L.C.P., Grove House, Highgate.

A vote of thanks to the Chairman concluded the proceedings.

In the evening forty-two members and friends of the College dined together at the Hotel Cecil, under the presidency of Sir PHILIP MAGNUS, M.P. The company included Prof. Adams, Prof. Adamson, Mr. Addis, Dr., Mrs., and Miss Armitage Smith, Mr. Bain, Mr. Barlet, Mr. and Mrs. Campbell Brown, Mr. and Mrs. E. A. Butler, the Misses Cahill, Mr. Charles, Rev. A. Church, Mr. Chalmers, Dr. and Mrs. Clay, Dr. Dickinson, Mr. R. E. Dickinson, Mr. Hawe, Mr., Mrs., and Miss Hodgson, Mr. Johnson, Mr. Kelland, Dr., Mrs., and Miss Maples, Dr. and Mrs. Moody, Mr. Mardling, Mr. Marx, Mr. Oldfield, Mr. Percival, Mr. Ruf, Mr. Sadler, Mr. Southee, Mr. Starbuck, and Dr. E. H. Stevens. Prof. Adams proposed the toast of "The College of Preceptors," which was responded to by the Chairman, and Dr. Armitage Smith proposed "The Visitors," which was responded to by Dr. Clay. A programme of instrumental and vocal music was performed during the evening by Mrs. and Miss Armitage Smith, Miss Hodgson, and Mr. Robert Percival, and was much appreciated by the guests.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

AN adjourned meeting of the Council was held on January 22. Present: Mr. E. A. Butler, Vice-President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage Smith, Mr. Bain, Mr. Barlet, Mr. Baumann, Rev. J. B. Blomfield, Mr. Brown, Mr. J. L. Butler, Mr. Charles, Miss Dawes, Mr. Eagles, Mr. Eve, Mr. Hawe, Dr. Maples, Mr. Marx, Mr. Milne, Dr. Moody, Mr. Pendlebury, Mr. Rule, Mr. Rushbrooke, Mr. Starbuck, Mr. Vincent, and Mr. White.

The diploma of Licentiate was granted to Mr. J. Harding, and that of Associate to Mr. R. A. Johnston, who had satisfied the required conditions.

The Report of the Deanship Committee was adopted.

EDUCATIONAL CONFERENCES.

THE ENGLISH ASSOCIATION.

The Annual General Meeting of the English Association was opened (January 14) at the University College, Gower Street, W.C. The annual report, which was unanimously adopted, stated that the Association numbered at the present time 1,124 full members and 354 Associates. This marked an increase in the year of 243 full members and a decrease of 56 Associates. There was good reason to anticipate that the work of the Association would be firmly established in America, where the study of English language and literature was actively pursued. Mr. Acland, in supporting the adoption of the report, said that he was informed the Association would shortly receive a communication from the Board of Education with some propositions as to the teaching of English in secondary schools. Lord Morley was unanimously elected President for 1910, Mr. Acland Chairman of the Committee, whilst the names of Prof. Boas, Prof. Alois Brandl, Mr. H. H. Furness, and his Excellency J. J. Jusserand were added to the list of Vice-Presidents.

The retiring President, Prof. Saintsbury, gave his annual address. Taking for his subject, "Shakespeare and the Grand Style," he controverted the declared opinions of Matthew Arnold as to what was known as "the grand style" in the works of Shakespeare. He found that Matthew Arnold could only accord to Shakespeare a sort of "uncovenanted" grand style—an occasional magnificence chequered, if not checkmated, by styles the reverse of grand. It appeared to him that, on the contrary, Shakespeare held the "grand style" in the hollow of his hand, letting it loose or withholding it as good seemed to him, and, further, that the seeming almost always was good.

In the evening the annual dinner was held in the refectory under the presidency of Prof. Saintsbury. Dr. Gregory Foster, Provost of University College, in proposing the toast of the evening, said that the Association might look back with pride to what it had, in the three short years of its life, been able to accomplish. The Association had amply justified its existence The Head Master of Eton, who replied to the toast, referred to the decision of the Head Masters' Conference to take up the important question of English teaching and try to adopt a uniform system of entrance examination for public schools, which would give the preparatory schools some chance to improve their English teaching. Owing to the chaotic character of their arrangements, the preparatory schools were absolutely debarred from giving anything but a cursory glance to our noble literature and language. A good deal of the work of improvement must be done in the home, where the parents could teach their children to pronounce their own language. At any rate, in the schools they were going to make English an integral part of the curriculum, and he did not see any chance of their efforts being defeated.

Next day (January 15) the Interim Report on Terminology was discussed and accepted, several points of detail being referred back to the Joint Committee for further consideration. We give the essential points on another page (page 70).

THE CLASSICAL ASSOCIATION.

At the meeting of the Classical Association (January 11) at King's College, London, Lord Cromer discoursed on "Ancient and Modern Imperialism." A resolution was carried: "That a University matriculation in Latin should comprise as obligatory parts, in both of which candidates are required to satisfy the examiners—(*a*) set books, or prescribed portions of authors, with questions, historical and literary, as well as grammatical, arising out of them, as large a choice of books as possible being left to the candidates; (*b*) unprepared translation." Prof. Sonnenschein presented the report of the Curricula Committee upon a four years' Latin course for secondary schools in which the leaving age is about sixteen. The Committee considered that Latin should be an integral part of the ordinary curriculum in a four-years' course in such schools, and set out at length the details of the course they suggested. He moved: "That, in the opinion of the Classical Association, it is desirable that a definite understanding should be reached as to the range of knowledge, especially in grammar and vocabulary, to be expected in the earlier stages of the study of Latin, up to and including the stage to which matriculation examinations should correspond, and that the attention of examining bodies be invited to the desirability of making their examinations accord with some such scheme of study as is indicated in the present report." The motion was carried. Dr. Rouse the unmoved: "That, in the early stages of classical study, while the amount of grammar should be strictly limited to what is necessary for the study of texts suitable for these stages, yet within these limits a high standard of thoroughness and accuracy should be demanded." He said that the Association should declare in favour of a high standard on the literary side, and in Greek as well as in Latin. The motion was carried.

THE MATHEMATICAL ASSOCIATION.

The Annual Meeting of the Mathematical Association was held at Westminster School, Prof. H. H. Turner, F.R.S., President, in the chair. The report stated that, since the last annual meeting, 113 new members had been elected and the Association now consisted of 569 members. The President referred to a visit which he recently paid to Egypt, where a reign of scientific efficiency had been established by Captain H. G. Lyons, late R.E., who, before leaving Egypt, had put the survey and its various ramifications on a secure basis. Discussing the position of mathematics, he asked whether, granting that a mere specialist was a grave educational mistake, they did not get as serious mistakes from striving after what was called "general education." Why should not mathematicians and men of science devise a "general education" of their own far more comprehensive than that which at present usurped the name? Papers on various subjects were read, including one by Mr. C. Godfrey on "Different Methods in Algebra Teaching for Different Classes of Students."

PUBLIC-SCHOOL SCIENCE MASTERS.

The Annual Meeting of the Association of Public-school Science Masters was held at Westminster School. Sir E. Ray Lankester was elected President for the ensuing year. Prof. H. E. Armstrong delivered his presidential address, which was entitled, "The Problem of Science in our Schools: their Complete Reorganization a Necessity." He was convinced that the future of our schools must depend on the position accorded in them to science, the acknowledged office of which was the elucidation of truth, and that the men most competent to take charge of them would be the science masters, whose business it was to study method and be practical, and therefore to solve problems and lead. Ere long the literary man in charge of a school would be an anachronism. The teaching of science in schools should consist primarily of instruction in the art of inquiry—in other words, in the experimental method, which was not the same thing as demonstrating experiments. The system of lecturing to students and then directing them to work from printed instructions in the laboratory was as vicious as it could be. So far as he could discover, there was no organization of the teaching in our schools, and scarcely any of our head masters were, in any sense of the term, masters of method. A new race of head masters was required, who would make the study of educational method their own proper study—a race of broad-minded, practical men, who would be in touch with the world and be prepared to put every form of commercialism aside. The papers read subsequently included "A Suggestion for the Simplification of Symbols used in Physics Text-books," by Mr. J. R. Eccles (Gresham's), who pointed out the want of system in the meanings attached to symbols in different text-books; "A Plea for Teaching Geology and Biology to all Boys during their School Course," by Mr. L. Cummings (Rugby); "Laboratory Equipment and Design," by Mr. W. E. Cross (King's School, Peterborough); and "The Teaching of Oxidation and Reduction," by Mr. F. M. Oldham (Dulwich). In connexion with the meeting there was an exhibition of scientific apparatus, the contributors to which included both members of the Association and manufacturers. Some scientific books were also on view.

CORRELATION OF MATHEMATICS AND PHYSICS.

A joint meeting of the Mathematical Association and the Association of Public-school Science Masters was held at Westminster School for the discussion of a report drawn up by a Joint Committee of the two Associations on the correlation of mathematical and science teaching. Prof. Forsyth, who presided, said that the report was a syllabus which was to be worked and tested and to be changed as experience required. Mr. C. Godfrey (Osborne), the Chairman of the Committee, said that he thought that the making of the report was desirable on account of the overlapping that occurred between mathematics and physics, and also because there was room for more sympathy between mathematical and science teachers. Prof. H. H. Turner, the President of the Mathematical Association, in moving the adoption of a resolution that the meeting was in sympathy with the attempt embodied in the report to correlate more closely the teaching of mathematics and science, said that he welcomed the movement represented by the report as affording mathematicians an opportunity of extending their interests. Prof. H. E. Armstrong, the President of the Association of Public-school Science Masters, in seconding the resolution, said that the science masters would welcome the movement, since, for at least twenty years, they had been asking for the absolutely essential assistance of the mathematical masters at the beginning of the course of instruction. Sir J. J. Thomson expressed his sympathy with the report. The resolution was carried.

THE MODERN LANGUAGE ASSOCIATION.

The Annual General Meeting of the Modern Language Association was held at Cambridge (January 6 to 8). The President (the Master of Gonville and Caius) and Mrs. Roberts held an "At Home" at Gonville and Caius College. Dr. Karl Breul, Cambridge University Reader in Germanic, was elected President for 1910. The Association has now some 880 members.

The Vice-Chancellor (Dr. Mason) welcomed the Association (January 7). Dr. Roberts, in his retiring address, insisted on a zealous maintenance of the highest standard of education now that the classics were losing their hold. He gave a welcome to the delegates from France, Germany, and Scotland. There was a general discussion on the interim report of the Sub-Committee on external school examinations in modern foreign language (preliminary and junior stages), so that the Sub-Committee might have the benefit of suggestions and criticisms offered. Dr. Breul afterwards delivered an address in German on the literary relations of England and Germany during the last four centuries, showing the mutual indebtedness of the two countries since the time of the Reformation.

On January 8, Dr. Breul, the new President, in the chair, the report of the Committee on the Existing Provision for the Training of Modern Language Teachers was submitted. The Committee were unanimous on the desirability of a period of residence abroad. As to the facilities for the training of secondary teachers, training colleges were already in existence for both men and women teachers, but at present there was little, if any, provision for the training of the former in training departments attached to secondary schools. The Committee recommended that provision should be made for this type of training; that the specialist teacher in either French or German should be required to possess a University degree in honours (or its equivalent) in the language or languages which he or she proposes to teach as a specialist, and should have spent a period (consecutive, if possible) of at least six months' residence abroad; that the professional training of teachers should be conducted in training departments attached to Universities, in training colleges, in training departments attached to schools, or by a combination of these; and that the student, before appointment to his first post, should have three terms of professional training. The report was adopted.

The interim report of the Joint Committee on Grammatical Terminology stated that the movement for the simplification and unification of the terminologies and classifications employed in the grammars of different languages appeared to have been well timed. The outstanding result of the Committee's deliberations had been to confirm its belief in the possibility and the desirability of the reform contemplated, but the Committee had as yet been unable to cover the whole ground of inquiry.

The afternoon meeting was opened by Dr. Braunholtz, Cambridge University Reader in Romance, with an address on "Evolution and Literary History," in which he examined how far, especially in France, the theory of evolution had been applied to literary history, considering especially the theory of M. Brunetière.

The final subject for discussion was "Humanistic Education without Latin." A paper on the subject, prepared by Mr. F. Storr, was read in his unavoidable absence by Mr. Atkinson. In the course of it Mr. Storr referred to the report of the Curriculum Committee at the recent Head Masters' Conference, and said that, according to the reformed scheme, the linguistic time-table for the preparatory school would be per week—English, 5 hours; Latin, $7\frac{1}{2}$; and French, 3 hours. French would be begun at latest at ten years of age and Latin at latest at twelve. Greek was to be superimposed at twelve for boys of promise, but with this apple of discord which set the Conference by the ears they need not trouble themselves. This was the ultimatum of the classicists—the extreme concession that they were prepared to make to the modernists. This programme could not, and would not, be accepted by the Modern Language Association—except, indeed, as a compromise, the best that they could extort from the head masters, and better than nothing. Mr. A. C. Benson also contributed a paper, which, in his absence, was read by the hon. secretary. Mr. Benson said that he believed it would be a very grave intellectual catastrophe if the study of the ancient classics by the right persons were to be menaced in any way in this country. But it was because he felt sure that those studies were not in the least in danger that he ventured to protest against another grave intellectual disaster—namely, the study of the classics by the wrong persons and their continued preponderance in education. His own view briefly was that, for a considerable number of boys, Latin was of no use unless it were studied very thoroughly, and that to study it thoroughly demanded more time than could be allotted to it in the curriculum. Dr. W. H. D. Rouse, replying to the two preceding papers, agreed that classics should not be studied by the unfit, but he did not think the average boy was unfit for Latin. Latin must be learnt as though it were a real living language. It must be taught on the direct method. There should be a remodelling of the curriculum.

THE HISTORICAL ASSOCIATION.

The Annual Meeting of the Historical Association was held (January 7 and 8) at University College, London, the President, Prof. Tout, in the chair. Miss S. A. Burstall, M.A. (Girls' High School, Manchester), opened the discussion on "The Methods of Teaching History in Schools." She dealt at length with the proper use of the lecture system, and laid stress upon the importance of making a selection from the wide field of facts and figures. Teachers should take an interest and, if possible, a part in public affairs. They must be citizens first, and then only would they be good history teachers. In actual history teaching, Miss Burstall advocated story telling, the utilization of the dramatic method, and the cultivation of human interest. Mr. N. L. Frazer (Batley Grammar School) spoke on the question of whether good oral teaching could be substituted for the text-book. Mr. C. H. Greene (Berkhamsted) said it was their primary duty to make history a living interest to their students. He welcomed the suggestion, made in the circular from the Board of Education, that the teaching of English history should be accompanied by the teaching of the great facts of European history. He would like also to put in a plea for the historical novel and play, which had the effect of giving to boys a living and active interest in the historical incidents there narrated or depicted. Having given that living interest, they could go on to teach the deeper and greater subjects connected with history. Mr. C. H. Marten (Eton) spoke on the subject of the value of questions in history teaching, and declared that questions set with care did much to develop the scholar's ability and provided a valuable mental training.

THE GEOGRAPHICAL ASSOCIATION.

The Annual Meeting of the Geographical Association was held (January 8) at the London School of Economics. Mr. Douglas W. Freshfield, the President, occupied the chair, and there was a large attendance of members. At the morning session, papers were read on "The Abuse of the Map and the Globe in Teaching," by Mr. A. A. Davey; on "Primitive Agriculture in the Hot Belt, and its Relation to Geographical Conditions," by Mr. J. W. Page; and on "The Practical Teacher's Point of View," by Mr. B. C. Wallis. In the afternoon, after the annual report had been read by Mr. J. F. Unstead (the Hon. Correspondence Secretary), Mr. Freshfield delivered his presidential address. He said that the keystone of their position, in reference to geographical education, was the two older Universities of Oxford and Cambridge. At Cambridge during the past year there had been some change: the Geographical Reader had been, so to speak, cut into three and attached to as many separate schools. How far this would be an advantage or otherwise it was difficult to tell. At Oxford there had been no change, only progress. Dr. Herbertson was continuing the work so successfully founded by Mr. H. J. Mackinder, and was now endeavouring to raise funds for the permanent endowment of a Professorship and for the provision of a permanent building. Two donations of £1,000 had been promised, and he heard from Lord Curzon, the Chancellor of the University, that he would be ready to consider the allocation of a substantial sum from the fund now being raised for the general purposes of the University towards the School of Geography. Taking a more general view of the progress of geographical teaching through the country, they might say that it had been going on, if not rapidly, at least steadily. In Ireland a Professorship of Geology and Geography had been created, both at Belfast and at Cork. He always looked with some suspicion on this combination, especially when geology came first. Whereas geology indulged in hypotheses, which often varied from decade to decade, geography was, or ought to be, a science springing from things which were seen. It had been suggested to him that there was scope for the practical application of geography in connexion with the new Town Planning Act, and he was told that several of their branches were making an accurate study of the surroundings of their respective towns and neighbourhoods. He could not imagine any more practical effort. While, however, such practical applications of geography were very good for grown-up people, they had to deal with the education of children. It was said by some that they should teach the child mainly concerning the things around him and not deal too soon with the distant parts of the world. He could only say that what stimulated his interest in geography when young was curiosity about things he had not seen. While they must encourage accuracy of observation in the child and make him reason from the things about him, they must lead him on to a knowledge of the distant wonders of the world.

The re-election of the officers of the Association, including Mr. Freshfield as President and Mr. Mackinder as Chairman of Committee, was agreed to. A lecture, illustrated by lantern slides, was afterwards delivered by Captain H. G. Lyons on "The Nile Basin and its Lessons: an Example in Geographical Study."

HEAD MASTERS' ASSOCIATION.

The Annual General Meeting of the Association of Head Masters was held in London on January 12 and 13. Mr. Philip Wood (Darlington), President, referred to the question of the provision of free places in secondary schools receiving grants from the Board of Education. He said there are many grammar schools in towns with a population of less than twenty thousand which educate the sons of the professional people and better-class tradesmen, but depend largely for their existence on being able to attract boarders. The position of such a school at the present time is very precarious. It has had always something of a struggle, and the grants of Local Education Authorities and of the Board of Education are just what it requires to give it new life; but the grants are conditioned, and the conditions, at least of the Board of Education, would seem to contemplate a large day school in a large town rather than the kind of school in question. The 25 per cent. rule, which does not greatly embarrass a large day school, will, if rigorously applied, almost ruin many schools which we can ill afford to lose. On the question of registration, he said there was a singularly unanimous demand for the recognition of teaching as a learned profession.

Mr. R. C. Gilson (Birmingham) moved a resolution to the effect that a reasonably high standard of attainment in such subjects as are taught in public elementary schools (regard being had to the candidate's age) should be required of all boys to whom free places in secondary schools are awarded. He said they wanted the best from the elementary schools in the secondary schools, not merely a certain proportion, and he maintained that the present method of selecting them was not the most satisfactory one that could be devised. The resolution was carried unanimously. Mr. P. Shaw-Jeffrey (Colchester) proposed: "That obstacles should not be placed by the Board of Education or by the Local Education Authority in the way of removal, by the governors, from such free places of those boys who, in the opinion of the head master of the school, are not justifying, by their work or conduct, the expenditure of public money upon their education." The resolution was passed. It was further resolved, on the motion of Mr. F. H. Chambers (Lincoln), seconded by Mr. W. G. Rushbrooke (Southwark): "That the disturbing effect of the free-place system on school finance is a matter of grave concern, and contains the possibility of permanent injury to those schools where fees form a substantial part of their income."

Mr. W. A. Knight moved a resolution welcoming the institution, by certain Local Authorities, of pensions for teachers, and pressing on all other Local Education Authorities the desirability, in the interests of education, of following this good example. He said that practically all European countries, except England, which had organized secondary education had adopted an adequate pension scheme. The resolution was carried.

A rider to the resolution was also passed, after considerable discussion, as follows:—"That this Association, having in previous years expressed approval of superannuation of secondary teachers, hereby requests the Council to co-operate with the Council of the Assistant Masters' Association and other associations of non-primary teachers in a practical effort to deal with the subject."

Mr. A. Rowntree (Bootham School, York) proposed: "That this Association, recognizing the growth of internationalism in the present and the influence of the teacher in the future, is opposed to military training in schools as tending to lower the ideals of youth and to impair the efficiency of educational work." The motion was defeated by a large majority.

A resolution, proposed by Dr. Gray (Bradfield)—"That this Association welcomes the establishment of the Public Schools League for Imperial land settlement as opening out careers for English youths in the over-sea dominions of the Empire, and as bringing about a closer touch between Great Britain and her

colonies,"—was carried, and some discussion followed as to widening the scope of the League.

Canon Swallow (Chigwell) moved a resolution approving the action of the Federal Council in convening a comprehensive conference of representatives of teachers' associations to deal with the question of teachers' registration, and pledging itself to promote the formation of a Teachers' Registration Council on the lines suggested by the Conference. Dr. McClure, in seconding the proposal, said they must go into the Conference struggling for something more than a mere Register. They wanted to put the profession on a solid and satisfactory basis. Several resolutions with regard to regulations for secondary schools were carried.

Mr. G. H. Clarke (Acton) proposed: "That, in the opinion of this Association, English should form a compulsory subject in all University entrance examinations." Mr. Addis seconded the resolution, and said that it was extremely difficult to get a schoolmaster who knew English. The resolution was carried, with several dissentients. Papers were afterwards read on "The Place of Phonetics in relation to Modern Language Teaching," by Mr. Shaw-Jeffrey (Colchester), and on "The Place of the Bursar in the Secondary-school System," by Mr. J. W. Iliffe (Sheffield).

ASSOCIATION OF ASSISTANT MASTERS.

The Annual General Meeting of the Incorporated Association of Assistant Masters in Secondary Schools was held (January 7) at the City of London School, under the chairmanship of Mr. F. Charles (Strand School) The statement of accounts showed total receipts £1,119, and balance of income over expenditure £178. Mr. W. A. Newsome (Stationers' School), the retiring Chairman, moving the adoption of the report, stated that the membership now amounted to 498. He urged greater simplification of the curriculum and more concentrated purpose in teaching. It was not new subjects that secondary education wanted, but improved methods of teaching the old subjects. In this connexion the Association at large congratulated its members who were in public and preparatory schools on the reformed curriculum advanced by the Head Masters' Conference a fortnight ago. Dealing with the question of the inspection of the great public schools, he said that the personal freedom and free play for one's individuality appeared to be threatened in the years that immediately followed the passing of the Act of 1902, but recent issues of the "Regulations for Secondary Schools" seemed to indicate the desire of the State to grant freedom for individual experiment under certain broad conditions, and the liberality of the Board of Education, as at present constituted, was one of the most promising elements in our modern educational life. The report was adopted.

The Chairman presented the report of the Special Committee on the Conditions of Service of Secondary Teachers in Foreign Countries, which, he remarked, would come up for discussion at next year's meeting. The report was exhaustive, and dealt with all the various systems of secondary education in foreign countries, from the extreme central control in France to the extreme individualism in England. In reporting upon those systems the Committee had not attempted to estimate the cost or the efficiency of the education given. The inquiry dealt with facts and not with opinions. Personally, he was struck, in the first place, by the fact that a system of secondary education needed something more than palatial buildings and energetic teachers, and that was a collective spirit. In that spirit England was lacking. So far as material considerations were concerned, he thought they would agree that in this country teachers were worse off than were the teachers in the majority of foreign countries, in respect to security of tenure, salary, and pensions. The number of schools in England where there were pension schemes of any kind was only twenty-four. They ought to have a national scheme, which applied to every secondary teacher in the country. He thought that, from the various systems which formed the subject of inquiry, they could find one which they could adapt to English circumstances. A vote of thanks was accorded to the Committee.

A resolution condemnatory of the policy, pursued in certain schools, of compelling assistant masters to bear the expense of providing substitutes during illness, and another proposing that steps should be taken to form, in connexion with the Association, a provident society whose object should be to provide sick pay for its members, were carried.

Subsequently Prof. Adams, Principal of the London Day Training College, read a paper on "Professional Spirit."

ASSOCIATION OF ASSISTANT MISTRESSES.

The twenty-sixth Annual General Meeting of the Incorporated Association of Assistant Mistresses in Public Secondary Schools was held (January 8) at Dr. Williams's Library, Gordon Square. There was a good attendance. The chair was taken by Miss E. M. Bancroft, High School, Bristol, the retiring President. It was announced that Miss Lees, of the High School, Clapham Common, had been elected President for the year 1910. The retiring President, in the course of the usual address, said the past year had left behind it a record of numerical advance and of maintained vitality. In March the President of the Board of Education received a deputation, organized by the Head Mistresses' Association, on the question of the status of women inspectors under the Board of Education. Mr. Runciman held out hopes of increasing the number of women on the inspectorate as well as of extending their scope and influence; but he was unable to give any definite promise with regard to changes in the conditions of tenure and salary. Their numbers showed a substantial increase, the membership having risen in two years from 793 to over 900. The remainder of the address was devoted to a review of the condition of secondary education generally. A long discussion took place on the question of a pension fund, resulting in the passing of resolutions urging that the scheme should be compulsory; that the yearly minimum pensions should be £50 and should be paid to the mistress from the age of fifty-five till death. In the afternoon Miss Geraldine Hodgson read a paper on "The Value of Past Educational Ideas to the Present."

ASSOCIATION OF UNIVERSITY WOMEN TEACHERS.

The Annual Business Meeting of the Association of University Women Teachers was held on January 14 at University Hall, Gordon Square. The President, Miss Janet Case, occupied the chair, and there was a good attendance. The twenty-sixth report stated that, during 1909, 283 ordinary members had been elected and the total membership now stood at 2,007. The President, in the usual address, said that in the educational world there had not been much legislation during the past year, but several movements had been set on foot which might be expected to bear fruit in the future. Various pension schemes were in the air, and seventy-nine new members of the Association had availed themselves of the scheme of the Norwich Union Office. They were agreed upon the desirability of a scheme of compulsory contributory pensions, and also one in which transference from one school to another should not be prejudicial to the teacher. There remained the questions of the proportion to be paid by the teacher, and whether the rest of it was to be paid by the Government or the governing body, which had not yet been settled. In the course of the coming year there would be opportunities of discussion on these points. There had been a great increase in the tutorial classes in the past year, the number having been no less than thirty-three, with an attendance of one thousand. The classes were attended by working men and women, who pledged themselves to three years' continuous study. The report was adopted, and a resolution providing for the incorporation of the Association was agreed to. It was announced that Miss Tuke, Principal of Bedford College, had been elected President for 1910. Prof. Adams, Principal of the London Day Training College, gave an address on "Teaching as a Fine Art."

LONDON COUNTY COUNCIL TEACHERS.

A Conference of teachers in elementary and secondary schools and technical institutes, arranged by the London County Council, was held at the Birkbeck College (January 6 to 8). Mr. Cyril Cobb, Vice-Chairman of the Education Committee of the L.C.C., presided at the opening meeting, and there was a large attendance, some two thousand tickets having been applied for. Mr. Millington started a discussion on the organization of higher schools, dealing with the aims of the L.C.C. New Central School

for Girls, the problem being to provide dual education—to fit the girl for home work and also for commercial or industrial employment. Dr. Spenser (University College School) complained of the lack of expert knowledge in our rulers, but discerned a new spirit in the official oracles and a growing recognition of the unity of education in all grades. The first great problem of the organization of a secondary school was that of defining its aim: the curriculum should be the outcome of local needs. No reorganization would be satisfactory unless it dealt with the question of endowments: increased efficiency in teachers meant increased expenditure. At the afternoon meeting, Sir William White presiding, addresses were delivered by Prof. D. S. Capper, King's College, on "The Training of Engineers"; by Dr. R. M. Walmsley, Principal of Northampton Polytechnic Institute, on "The Sandwich System as applied to Day Engineering Students"; and by Mr. R. Bunting, Head Master of the "Acland" London County Council Higher Elementary School for Boys, on "Higher Elementary Education and the Preliminary Training of Engineers."

On January 7, Prof. Adams presided over a discussion on the teaching of Number, papers on the fundamental principles of which were read by Mr. T. Raymont (Goldsmiths' College), Miss Lloyd Evans (Fulham Training College), and Miss R. Solomon (Commercial Street Jewish Infants' School). Domestic economy was discussed in the afternoon.

On January 8, the subject for discussion at the morning session, when Mrs. Wilton Phipps, Chairman of the Special Schools Sub-Committee of the London County Council, presided, was "Methods of Teaching in Schools for the Mentally Defective." Papers on the subject were read by Mrs. E. I. Keir-Turner, Mr. F. Cooper, and Miss M. Desbery. Mrs. Burgwin, Superintendent of Schools for Physically and Mentally Defective Children of the London County Council, said that the number of mentally deficient children was increasing. The public should remember that, though their training was bound to cost more than that of the healthy children, the cost was repaid and the nation was benefited if such children were made partially self-supporting. That they claimed to do in the special schools. Her hope was that the next Government would take up and deal with the report of the Royal Commission; that these mentally defective children would be passed on from the schools to working colonies where they could lead useful lives under supervision. Mr. E. A. H. Jay, Chairman of the Day Schools Sub-Committee of the London County Council, presided at the afternoon session, when the Conference discussed "Educational Experiments in Schools." He said they were told sometimes that the children, when they left school, were wanting in adaptability. The remedy lay, to a great extent, with the teachers, who should try to inculcate in their pupils the power of observation. One of the difficulties they had to contend with in elementary education was the large classes, and the authorities were giving the subject great attention. Papers on various educational experiments were afterwards read.

PRIVATE SCHOOLS ASSOCIATION.

The Annual General Meeting of the Private Schools Association (Incorporated) was held (January 7) at the College of Preceptors. Though the attendance was not large, it was representative, members attending from distant parts of the country. Mr. S. Maxwell (Clapham) was in the chair. The past year, the report stated, had furnished abundant indications that the movement in favour of a universal State-controlled system of education was still being hurried forward, and that the serious results of such a policy were still but very imperfectly appreciated by those in whose power it was to arrest what had been well described as "the Socialistic and bureaucratic blight which threatens destruction to the life of our educational system." There were, however, unmistakable signs of an awakening on the part of the public to these dangers, and the Association had throughout the year the support of the British Constitution Association, the National Federation of Rate-payers' Association, the Middle Classes' Defence Organization, and the League of the Empire, and they had worked with the Federal Council of Secondary Associations. The establishment of a "one-column Register" was advocated by a conference (in which the Association took an active part) held in London in November, but whether it would result in the formation of a teaching profession strong enough to exert influence upon the forces of bureaucratic control was a very open question. The Association might be congratulated on the fact that, as the outcome of the conference, it was to have representation on the Teachers' Registration Council, and a glaring defect of the old Registration Council was thereby removed. The Association perhaps was now in a stronger position than it had ever been; more than at any period of its history it represented the best and most efficient schools in the country. The finances were in a sounder position than for years past.

In dealing generally with the events of the year the Chairman, referring to the work done in alliance with other associations, commended it as minimizing the danger of any accusation that they were simply fighting for their own private interests. The Association was doing a greater work than the protection of the pockets of the members. They considered that the protection of private enterprise in education was of the first importance to the interests of the nation, and that was why they were so keen in contending for the freedom and elasticity of education. They hoped soon to be able to start a fund for propaganda work and to establish a reserve fund for legal defence when the opportunity arose. The scheme for a "one-column Register," agreed upon at the conference referred to in the report, had now been laid before the Board of Education, and, as the influence of all the great teaching associations was behind it, they had every hope that it would be accepted.

Dr. F. Arthur Sibly was re-elected President. Other business, including the report of the Federal Council representatives, was dealt with in private.

NORTH OF ENGLAND EDUCATION CONFERENCE.

The eighth Annual Education Conference for the North of England was opened (January 6) with a conversazione at the University of Leeds. There was an attendance of some two thousand educationists from different parts of the country. In connexion with the Conference an exhibition was opened (January 5) at the University, representing some of the leading educational houses of the country, educational publications and school appliances being on view. On January 7 the delegates were welcomed by the Lord Mayor, and the President (Sir N. Bodington, Vice-Chancellor of the University) delivered his opening address. Prof. M. E. Sadler and Mr. James Baker read papers on "The Relation of Elementary to Technical Schools." On January 8 the question of educational systems abroad and in England was the chief subject discussed, all the sections uniting. Mr. J. C. Medd said that the Board of Education in England gave little or no information as to new and successful experiments, its reports being mainly of statistical value, and to this he largely attributed the common depreciation of English education. This lack of information rendered a comparison between English and foreign systems difficult and misleading. With regard to Germany, the standard of comfort, contentment, and, in the rural districts except East Prussia, intelligence was far below that of the corresponding classes here. The facilities for technical and scientific instruction were as great here as there, but where the Germans had the advantage was in the better quality of the pupils who attended colleges and schools, which was entirely due to the excellence of their secondary education. In elementary education as a whole we stood unrivalled, with the possible exception of Holland. With the exception of secondary and agricultural education, we had no reason to be despondent about the situation in England. In one or other parts of the British Isles there was no type or grade of school which was not equal to anything that might be seen abroad. He suggested that education committees should study samples of home produce rather than assume that there must be some superiority in what was done abroad.

Mr. Otto Siepmann (Clifton College) urged that the Central Authority should keep in touch with the schools. Mr. Cloudesley Brereton (Divisional Inspector to the London County Council) enforced the importance of training for livelihood and life and securing the partnership of the business world; and, in the further discussion, it was contended that the American child made better use of knowledge than the English child, and the encouragement of questioning by scholars was recommended. The afternoon session was devoted to discussions in the sections. Liverpool was fixed for next year's Conference.

GRAMMATICAL TERMINOLOGY.

At the recent Annual General Meeting of the Classical Association, the following recommendations of the Joint Committee appointed to consider the proposal made at the Birmingham meeting of the Association in October, 1908, for the simplification and unification of the terminologies and classifications employed in the grammars of different languages were provisionally approved, with three amendments (see below).

1. That the first stage of analysis of a sentence be a division into two parts, to be called the "subject" and the "predicate," the subject being the group of words or single word which denotes the person or thing of which the predicate is said, and the predicate being all that is said of the person or thing denoted by the subject.

2. That the part of the predicate which, taken in connexion with the verb, indicates what the person or thing denoted by the subject is, or becomes, or is named, or seems, be called the "predicative adjective, noun, or pronoun."

3. That the same terms be employed to denote the adjective or noun similarly used in relation to the object or to any other part of the sentence.

4. That the term "attributive" be used to distinguish adjectives and nouns which qualify a noun from adjectives and nouns which are predicative.

6. That the term "adverbial qualification" be used to denote the adverbial part of the predicate—that is, the part which qualifies the verb, being neither an object nor a predicative noun, adjective, or pronoun.

7. That, as no special name is needed in analysis to describe the particular kind of adverbial qualification often called the "indirect object," this term be discarded.

8. (*a*) That all sentences be divided into two classes, the first to be called "simple," the second "complex"; (*b*) that a simple sentence be defined as "one which contains no subordinate clause" (see 10, below); (*c*) that a complex sentence be defined as "one which contains one or more subordinate clauses."

9. That the terms "double," "treble," or "multiple" be used in the description of a sentence or any part of a sentence which consists of two or more coordinate parts.

10. That a part of a sentence equivalent to a noun, adjective, or adverb, and having a subject and a predicate of its own, be called a "noun, adjective, or adverb clause"; and that that part of a complex sentence which is not subordinate be called the "main clause."

11. That a part of a sentence equivalent to a noun, adjective, or adverb, but not having a subject and a predicate of its own, be called a "noun, adjective, or adverb phrase" (or some similar term).

12. That the term "noun" (not "substantive") be used as the name of a part of speech.

13. That the following parts of speech be recognized: Noun, pronoun, adjective, verb, adverb, conjunction, preposition.

14. (*a*) That the words *my*, *thy*, *her*, *its*, *our*, *your*, *their*, and *his* in the corresponding use (*e.g.*, *his father*); *mein*, *dein*, *sein*, *ihr*, *unser*, *euer*, *Ihr*; *meus*, *tuus*, *suus*, *noster*, *vester*; *mon*, *ton*, *son*, *notre*, *votre*, *leur*; ἐμός, σός, ἡμέτερος, ὑμέτερος be called "possessive adjectives"; (*b*) that, in their ordinary use, English *hers*, *ours*, *yours*, *theirs*, and, in the corresponding use, *mine*, *thine*, *his* (*e.g.*, "This is his," "His is better than hers"), French *le mien*, &c., German *der meinige*, &c., be called "possessive pronouns."

15. That English *this* and *that* in their attributive use be called "demonstrative adjectives," but in their non-attributive use be called "demonstrative pronouns."

16. That the words *ipse*, *selbst*, *myself* (in the sense of *ipse*), *moi-même*, &c., and αὐτός be called "emphasizing adjectives or pronouns."

17. That the terms "objective," "possessive," and "nominative of address" as names of cases in English be discarded, and that, so far as possible, the Latin names of the cases be used.

18. That the same names of cases be used also in French. [cf. 21.]

19. That, in French and English, the case used after prepositions be called the "accusative."

20. That, in Latin, the names used for the cases be as follows:—Nominative, vocative, accusative, genitive, dative, ablative; and that the term "locative" be used to describe forms like *humi*, *ruri*, *Romae*.

21. That, in German, the traditional names of the cases be retained in preference to the new terms *Wer-Fall*, *Wen-Fall*, *Wes-Fall* (or *Wessen-Fall*), *Wem-Fall*.

22. That the order of the cases (where found) be as follows:—Nominative, vocative, accusative, genitive, dative, ablative.

23. That, in the nomenclature of French personal pronouns, the terms "heavy" and "light" are preferable to the terms "disjunctive" and "emphatic," "conjunctive" and "unemphatic," respectively.

24. That, in English grammar, no gender be recognized.

25. That the following scheme of names of tenses of the indicative be adopted. (In this scheme account is taken not only of the relations of the tenses in the five languages to one another, but also of the needs of each language as taught separately.)

It was agreed to refer Paragraph 7 back to the Committee, as well as a note to Paragraph 4—"that the term 'apposition' is here discarded as unnecessary"—and a note to Paragraph 1.

CORRESPONDENCE.

[*We do not hold ourselves responsible for the opinions expressed by our correspondents.*—Ed., *E.T.*]

THE DECLINE OF GERMAN TEACHING AS AN INFERENCE FROM LOCAL EXAMINATION STATISTICS.

To the Editor of "The Educational Times."

Sir,—As this subject appears to be interesting and is certainly important, may I offer a few remarks and suggestions respecting it, based on facts connected with the curriculum and routine of my own school? In order to be at liberty to speak freely, I beg to be anonymous.

In this school we have taken regularly for many years two of the "Locals," one of which is that of the College of Preceptors. With rare exceptions, we offer every candidate in French at each examination, but very few of them in either Latin or German. Yet one or other of these languages is virtually compulsory in the upper three-fifths of the school. They do not, except in very special cases, obtain the same amount of time as French; but they get a material share of it, and are in good hands and in smaller forms. It would, of course, be a sham to take them at all otherwise.

In the examinations we are thereby handicapped in comparison with schools which are able to concentrate their attention more approximately upon examination subjects alone. Undoubtedly we feel it also; but the requirements of the people we serve, as well as what we strongly believe to be their interests, call for the effort, and we make it cheerfully, I trust, so far as human nature will permit. Probably we are by no means alone in this position, and, if so, German is not so badly treated in schools as the examination statistics appear to prove. That these indicate more or less decline may be granted; but that they furnish anything like a reliable measure of the decline may be fairly doubted.

Our reason for not submitting the Latin or German to examination so freely as the French is that we commence them together a year later than French; which we believe to be best in our circumstances. Hence, when the French has reached the standard of some examination for which a pupil is entered, his Latin or German is, as a rule, distinctly below it. Personal inspection of a school has here an advantage; as an Inspector would allow for the position when explained and give consideration accordingly.

But, with or without inspection, we still find in other respects clear advantage in external examinations; and it has appeared to me at times that the latter might be made to meet the situation better than they do. Either Latin or German, even when a stage behind French, if the latter has become fairly advanced, is a valuable possession in itself, apart from the fact that specialization in one or other of them so often becomes unexpectedly necessary to youths later on. In their own stage these languages would, no doubt, be cultivated with additional zeal if they could be recognized in examinations, with a valuation, of course, according to that stage.

A method of accomplishing this is, perhaps, easiest to indicate by reference to the examinations of the College of Preceptors. Therein, at present, Second Class candidates may offer one or more subjects in First Class papers. I would suggest that, if a candidate passes in subjects, including French, which already qualify for a First Class certificate, it be permissible for him to have credit also for Latin or German taken on Second Class papers, without lowering the class of his certificate.

There are, perhaps, one or two other classes of subjects which deserve similar consideration; but languages, from their difficulty as well as importance, seem to have a paramount claim to be the first to be experimented upon with the object in view which has been indicated.

I leave the subject at this point, for the present at least, for, if it really merits discussion, it is likely that others will contribute views with respect to it. P. Q.

THE EDUCATIONAL LADDER.

ABERDEEN UNIVERSITY.—Fullarton, Moir, and Gray Scholarship in Mental Philosophy: Lachlan Macrae, M.A.—Murray Scholarship in English and History: Elizabeth Whyte, M.A.

CAMBRIDGE UNIVERSITY.—Seatonian Prize: J. E. G. de Montmorency, M.A., LL.B., Peterhouse. Sedgwick Prize: O. T. Jones, M.A., late of Trinity.

Queen's.—Entrance Scholarships and Exhibitions. Mathematics: T. R. W. Hunt, University College School, £50 scholarship; B. A. Zarman, Central Secondary School, Sheffield, £45 scholarship; G. B. Riddell, King's School, Chester, £30 exhibition; F. W. Shurlock, Rossall and Derby Technical School, £20 exhibition; H. D. Townend, King's School, Canterbury, £20 exhibition. Classics: E. W. Hickie, Bath College, £60 scholarship; H. J. Leigh-Clare, Rossall, £50 scholarship; C. Nathan, Rossall, £30 exhibition; R. Hutton, Marlborough, £30 exhibition. Science: M. Thompson, Nottingham, £40 scholarship, A. D. Hayward, St. Olave's, £40 scholarship; G. A. Perry, Warwick, £30 exhibition. Theology: E. F. Duggan, St. Edmund's School, Canterbury, £30 exhibition.

St. Catharine's.—Scholarships: G. F. Everington, Hymers' College, Hull, and G. Rigby, Blackburn Grammar School, for Mathematics; H. W. P. McMeekin, King William's College, and H. McGowan, Bristol Grammar School, for Classics.—Exhibitions: A. J. Wood, Denstone College, for Classics; and A. K. Barton, Bury St. Edmund's, G. F. Graham Brown, Monkton Coombe, and R. C. Caine, King William's College, for History.

LONDON: COUNCIL OF LEGAL EDUCATION.—Barstow Law Scholarship: John N. Daynes, Lincoln's Inn.—Studentship (100 guineas a year for three years): John D. I. Hughes, Middle Temple.—Abe Bailey Exhibition (Roman-Dutch Law), £50: August A. Schosch, Middle Temple.

LONDON UNIVERSITY.—Derby Scholarship in Zoology, tenable for two years at University College: Miss D. M. Simmons, B.A., B.Sc. Gladstone Memorial Prize: N. L. Mackie; *proxime accessit* A. C. Dawes. George Smith Studentship (B.A. Honours Examination for Internal Students): Gladys M. Inkster, Bedford College; *proxime accessit* Hilda M. Harris, Royal Holloway College. University Medal (M.B., B.S. Examination): Harry Platt, Manchester University. Gladstone Memorial Prize (B.Sc. Economics Honours Examination for Internal Students): Henry G. Richardson, London School of Economics.

The following Pass List of the examination in Pedagogy for external students has been issued:—J. I. Bulley, King's College; W. E. Callister, W. David (Economics), F. W. Drew, and G. B. Ellis, private study; Edith A. Ford, Maria Grey Training College and private study; W. H. Gilby, Westminster Training College and private study; Egbert Hockey Magson, Westminster Training College; Letitia G. Murphy, King's College and private study; H. E. Ridsdale, Margaret K. Scholes, Louisa Story, E. R. Thomas, K. J. Thompson, G. H. Thomson, and Alice E. Tilley, private study; A. M. Walmsley, University College and private study.

OXFORD UNIVERSITY.—Mathematical Scholarships and Exhibitions, 1910.—Senior Mathematical Scholarship: Theodore W. Chaundy, B.A., Scholar of Balliol. Junior Mathematical Scholarship: Noel T. Huxley, Honorary Scholar of Balliol. Exhibition: Jacob Morgan, Scholar of Jesus; *proxime accessit* George G. Miln, Demy of Magdalen.

Jesus.—Open Scholarships in Classics: Percy A. Seymour, Melbourne University, and Aubrey O'H. Russ, Dulwich College. Open Exhibitions in Classics: William E. Nicholson, Leeds Grammar School, and Gerald C. Whiteley, Bradford Grammar School. Welsh Classical Scholarships; Brian Rhys, Llandovery College, and John E. James, University College, Cardiff. Welsh Classical Exhibitions: Harold L. Evans, University College, Aberystwyth, and Trevor S. Philipps, Llandovery College. Open Mathematical Scholarship: Frank C. Bryan, Christ's Hospital. Open Mathematical Exhibitions: Thomas P. Threlkeld, Manchester Grammar School, £60; and Alec G. J. Elworthy, non-collegiate student, £40. Welsh Scholarship in Mathematics: Stanley L. Price, St. David's College School, Lampeter. Natural Science Scholarship (open): Cyril Bride, Middlesbrough High School. Natural Science Scholarship (Welsh): Percival G. Davies, Gowerton County School and Jesus College. Modern History (open) Exhibition: Thomas C. Wells, Marlborough College, £40. Theological Exhibition (Welsh): Owen H. Jones, University College, Bangor, and Jesus College, £30.

St. John's.—Casberd Scholarships: Treffry O. Thompson (Physiology); Arthur C. J. Baldwin and Richard G. St. Quintin (English Language and Literature). Casberd Exhibitions: R. S. Capon (Mathematics); Sidney P. Lissant and R. D. Middleton (Theology).

Trinity.—Foundation Scholarships of £80: Clifford Willoughby Hordern, Cheltenham College; John Gilbert Lockhart, Marlborough College; Kenneth Fitzpatrick Mackenzie, Wellington College; Daniel Llewelyn Vawdrey, Rugby School. Exhibition of £70: Robert Allan Cameron, Edinburgh University. Exhibition of £60: Percy Horsfall, Victoria College, Stellenbosch, and Trinity College. Ford Studentships (close): Dionys John Norris Lee, King's School, Canterbury; Edward Allen Ashwin, Ipswich Grammar School. Millard Scholarship of £80 for Chemistry: Edward ffolliott Creed, Wyggeston School, Leicester.

Wadham.—Open Scholarships: Francis B. Coldwells, Whitgift Grammar School, Croydon; Edward J. R. Edwards, Bristol Grammar School; Dionys John Norris Lee, King's School, Canterbury; Samuel A. C. Green, Dulwich College. Woodward Scholarships: Charles W. B. Marsh, St. Edmund's School, Canterbury. Exhibitions: Harold Beckett, Monmouth Grammar School (£60); Michael H. B. Nethersole, St. Edward's School, Oxford (£40); James L. Dodds, Marlborough College (£30); Abraham L. Blank, City of London School (£30).

The Delegacy for training Secondary Teachers have issued Diplomas in Education to the following persons:—G. E. Fawcus, B.A., New College; C. Trenchard, B.A., Christ Church; Emma D. Backhouse, B.A., London; Olive C. Coldwell, Somerville College, Oxford; Mary Cornish, St. Hugh's Hall, Oxford; Phyllis Monk, B.A., Dublin; Ethel G. Romanes, Lady Margaret Hall, Oxford; and Lavinia D. Smith, B.A., Wellesley College, U.S.A.

COLLEGE BLOOMSBURY SQUARE PRECEP

REVIEWS.

THE TECHNIQUE OF TEACHING.

Exposition and Illustration in Teaching. By John Adams, M.A., B.Sc., Professor of Education in the University of London. (5s. Macmillan.)

A new book by Prof. Adams is a thing to arouse pleasant anticipations in the minds of a host of readers in two continents; and those anticipations will not suffer the least disappointment in respect of the work under review. Clear exposition, a true catholicity of interest, an ever ready humour, sound learning lightly borne, we have learned to expect from Prof. Adams as matter of course. This book has all these fine qualities, and, moreover, throughout its pages the reader is kept continuously in touch with the actualities of the classroom.

The scope of the work is much wider than the title leads one to expect. Whereas Exposition and Illustration were treated in the text-books of a generation ago as mere devices and occasional expedients of the teacher, in Prof. Adams's treatment they become wellnigh co-terminous with the whole process of instruction. For example, the discussion of "the beginnings of Exposition" introduces the instructor to some of the fundamentals of his business. Again, it is here shown that what is frequently called "inductive teaching" may sometimes be regarded as a mode of illustration, and that "Anticipatory Illustration" is a good descriptive name for "the heuristic method in its healthier forms." (The term seems to be a happy one for the additional reason that it implies a denial of a claim often made for the heuristic method. As the author says, "we cannot put pupils in the position of the original discoverer," so long at least as the pupil is a schoolboy.) The reader will also find something like a dozen passages in different parts of the book which are based upon the experimental study of instruction; these are not only valuable in themselves, but carry the suggestion that similar work may be easily and profitably undertaken in the ordinary course of school practice by a teacher who is not satisfied with rule-of-thumb or conventional maxims adopted *a priori*. In short, Prof. Adams has given us a book upon the technique of teaching which may claim to be a study introductory to the Theory of Instruction, rather than an exposition of its expedients or devices merely.

The opening chapters of the work form a lucid statement of so much psychology as should be familiar to the instructor. The mental science here expounded is alive, and it is so expressed that a reader unacquainted with the technical terms and mode of thought of modern psychology must yet feel that what he is reading is vitally related to the teacher's daily task. Naturally, the leading thoughts are that for the teacher's purpose mind is most usefully figured as an organism, and that ideas are best conceived as tending to coalesce in groups and systems. Historically, it is to Herbart that we owe the introduction of these prolific conceptions into educational thinking, and their elaboration and applications peculiar to this book make us once more Prof. Adams's debtor.

The chapters on "Mental Content," "Mental Activity," and "Mental Backgrounds" are followed by the greater part of the book, in which is worked out the relevancy to practice of the ground-thoughts previously formulated. Here we find discussed Ziller's *Formale Stufen*, Exemplification and Analogy, Illustration (in the conventional sense) and a particularly valuable and opportune set of chapters on the employment, advantage, and inadequacy of models, pictures, and diagrams as teaching devices. One is inclined to grumble when the "Formal Steps," *eo nomine*,

are fathered upon Herbart: the grumbler is entitled to ask, *where* does Herbart speak of the "Formal Steps"? The footnote to page 145, "Allgemeine Pädagogik," Book II, chapter ii, seems to be a slip of the pen for "Book II, First Chapter, Second Section," or, according to the captions of Bartholomäi and von Sallwürk, "2 Buch: 1 Kap. II." But neither in the "Allgemeine Pädagogik" nor in the later *Umriss* does Herbart apply the name "Steps" to the four processes—Clearness, Association, System, Method. Where he names them at all, he calls them "modes of teaching" (*Lehrweisen*), a term very ill accordant with the notion of "Steps." It is Ziller, of course, and not Herbart, who is responsible for the "Formal Steps." These are fast passing into the condition of "pedagogic rites," to use Prof. Adams's own phrase, and they might very well be given no more than their due. There is an abounding vitality (missing from the "Steps") in our author's own terms and their implications. The teacher will find innumerable occasions of applying the ideas which Prof. Adams calls the "Inference Point" (below which fact has passed into faculty), the "Gaping Point," or limit of organized mental content, the "Threshold of Stun," the "Inference Zone," or plane of mental growth, which lies, if a geometrical solecism be permitted, between the two points first named.

The results of some of Prof. Adams's experiments directed to discovering the effectiveness of diagrams will probably surprise some teachers, especially those who live in the faith that visualizing is a universal expedient beyond doubt. These experiments show that it is insufficient to appeal to one organ, the eye, to interpret all modes of experience. The boy who is to realize a mile should run or walk the distance; ounces and pounds are things to be handled as well as names found in sums; a stiffish climb of 500 feet will teach more about heights than any device which is open to the denizen of classroom or schoolyard. The craze for illustrative objects should be reduced to something less than a craze by Prof. Adams's much-needed protest. The writer of this notice once, when inspecting the very liberally equipped museum of a continental school, was told that the collection included a stuffed pony, at the moment stored in a loft!

We are at one, then, with Prof. Adams when he pokes fun at the teacher of history who cannot be happy unless he has at least a photograph of certain scraps of metal in the Ashmolean associated with Guy Fawkes. But there is a further point with reference to the use of pictures in the teaching of history which we should like to see made. It is, briefly, that two quite different sorts of pictures are useful, even necessary, at different stages of historical instruction. The earliest to be used are (so we venture to think) pictures employed for their "meaning" or "value"; these are purely imaginative presentments of scenes in history, "spirited pictures" whose "spirit" is the one thing needful to make the past live again in children's eyes. The second kind is meant for older pupils; such pictures are primarily addressed to literal fact, and their archæological fidelity makes them veritable historical documents of high value in the instruction of senior pupils. Such are photographs of buildings and other ancient monuments, reproductions of "illuminations" from MSS., old woodcuts, and the like. We believe that the teaching of history in English schools would be greatly improved by following French example in this instance.

"Exposition and Illustration" is furnished with a good index, which has answered successfully all the challenges we have made to it. The veteran thinker, Galton, now honours the title of knighthood, and the fact might be noted on page 275. Why should there be hesitation in applying the term "pupil" to "a person who has left school"? Is it not the customary name given by a University teacher to all whom he instructs, graduates no less than undergraduates?

In taking leave, we cordially thank Prof. Adams for a brilliant book, which is very pleasant to read and most profitable to perpend, mark, and digest.

The Eighteenth Century.

"The Cambridge Modern History." Vol. VI.—*The Eighteenth Century.* (16s. net. Cambridge University Press.)

The latest instalment of this monumental work covers the period from the Peace of Utrecht, which formed the basis of so many subsequent treaties, to the outbreak of the French Revolution. That great upheaval, and the War of Independence in our American colonies, will form the subject of the next volume, and naturally a discussion of the events leading up to them, even though these occurred in the eighteenth century, will be found there.

Mr. R. Nisbet Bain, Assistant Librarian at the British Museum, who contributed to the present volume articles on "Poland under the Saxon Kings," "Russia under Anne and Elizabeth," and "The Hats and Caps, and Gustavus III," passed away before its publication. "Mr. Bain," write the editors, "was one of the contributors selected by Lord Acton at the inception of this work as a historical writer who had few rivals in his intimacy with the languages and the historical literature of Northern and Eastern Europe; and, as our readers are aware, this history is deeply indebted to him for the ample share he has taken in its production."

While the eighteenth century was an age of enlightenment, of the revolt of the trained mind against tradition and superstition, it was at the same time contemptuous of true originality, lacking in compassion for failure, and impatient at the inevitably slow process of historic growth. In his chapter on the age of Walpole and the Pelhams, Mr. H. W. V. Temperley draws a striking contrast. "Under Walpole," he says, "idealism or self-sacrifice is absent. The chief crisis of his period was due to stock-jobbing, its chief victories those of commerce. The claims of rival merchants, not the sermons of rival preachers, are the incentive to strife; to the wars for religious or political rights succeed the wars of dynastic or commercial ambition. The tyranny of ideas which had caused the religious contention of the seventeenth century yields to the tyranny of facts and materialism which causes the political strife of the eighteenth." Mr. Temperley devotes considerable space to the state of religion and the influence which Wesley and Whitefield exercised on the Church of England and on religious life in general.

Indeed, no phase of the activities of the age is neglected—from India to Brazil, from Sweden to Italy, from the Romantic movement in English literature to financial experiments and colonial development, all are here. Writing on the last two topics, Mr. E. A. Benians gives a terse account of the rise and fall of the Scottish financier, John Law, and of his system in France. Passing to England, he discusses the South Sea Company, whose collapse he holds to have been due, not to defects in the scheme or to lack of energy, but principally to want of opportunity, concessions promised it being hedged about with conditions which much diminished their utility. The South Sea Bubble was "the giant in a sea of bubbles." Frantic speculation was rife and there came the inevitable crash. From the South Sea scheme the article turns to colonial development and the slave trade.

A German professor, Dr. Wolfgang Michael, of Freiburg, has been chosen to give an estimate of the political career of the elder Pitt. His glowing tribute to the abilities of that great statesman is the more valuable in that it is entirely free from the suspicion of bias that might rest on the panegyric of an English writer. As a contrast to Pitt's vigorous administration we have from Mr. J. M. Rigg, Inspector of MSS. under the Historical Manuscripts Commission, a chapter on "The King's Friends," while Mr. M. J. Griffin, Parliamentary Librarian of Canada, follows with an account of the rise of the younger Pitt. Dr. A. W. Ward and Mr. J. F. Chance write respectively on the Hanoverian Succession and George I's foreign policy.

Prof. Sanford Terry has accomplished admirably the task of chronicling the Jacobite risings of 1715 and 1745 and the final extinction of the movement in Scotland, while Mr. Robert Dunlop contributes an interesting chapter on Ireland. It was during the eighteenth century that we won India, whose period under the Mogul dynasty is dealt with by Sir A. Comyn Lyall, G.C.I.E. The struggle between the French and the English and the events that culminated in the impeachment of Warren Hastings are succinctly described by Mr. P. E. Roberts.

Abroad, Frederick the Great is, of course, the chief figure, and the editors claim that his achievement in raising his kingdom to the position of a great European power is narrated without the distortions of either apotheosis or apology. Dr. Emil Daniels is the chief exponent of the great Prussian. To the chapter on the war of the Austrian succession, by Mr. C. T. Atkinson, he contributes a section describing the condition of Prussia under the predecessor of Frederick the Great; he also deals with the Seven Years' War, and gives an estimate of the home and foreign policy of the man who embarked Germany on the course which in later years the great pilot Bismarck steered.

For the rest, it must suffice to indicate still more briefly the other features of this great work. We have the Bourbon Governments in France and Spain discussed by Mr. Edward Armstrong; and the condition of Spain and Portugal and their colonies in

the latter half of the century by the Rev. G. Edmundson. Prof. Hubert, of Liége, deals with the reign of Joseph II and its effects. "Italy and the Papacy" is the subject of a chapter by Mrs. H. M. Vernon. Prof. Schollenberger, of Zurich, writes of Switzerland, and especially its foreign service system. There is also a disquisition on "The Reversal of Alliances" and "The Family Compact" by M. Jean Lemoine. In Northern Europe, in addition to Mr. Bain's articles, we have one on Catharine II by Prof. Hötzsch, of Posen, and another on Denmark under the Bernstorffs and Struensee by Mr. W. F. Reddaway. The volume closes with a chapter on English political philosophy in the seventeenth and eighteenth centuries by Mr. A. L. Smith, and Mr. C. E. Vaughan's article, already referred to, on the Romantic movement in European literature.

THE CALCULUS FOR BEGINNERS.

Elements of the Differential and Integral Calculus. By A. E. H. Love, M.A., D.Sc., F.R.S. (5s. Cambridge University Press.)

The writer's aim in undertaking the production of the present work, and the general scope of the volume, may be readily gathered from the interesting preface. Dr. Love maintains that some acquaintance with the principles and methods of the calculus should form part of the educational equipment of every intellectual man or woman, and that to obtain a sufficient knowledge of the subject need not involve wide reading in mathematics generally. His arguments in discussing the theory of the calculus are sufficient to carry conviction to the reader, and he does not fail to point out what portions of the subject require closer investigation for their treatment to be thoroughly scientific, and what propositions are true only when certain restrictions are recognized. The full consideration of such parts of the theory is more important from the point of view of the mathematician than from that of the purely practical student; hence in the author's scheme these are elaborated in appendix form, and the complicated details are thus prevented from causing undue delay in acquiring a broad grasp of general principles. The choice of material for the treatise and the methods of treatment are the outcome of several years' experience in lecturing on the subject of the Infinitesimal Calculus to students who require it chiefly in order that they may make use of it in its application to their other scientific work. The reader is very soon convinced that the author himself possesses no merely superficial knowledge either of the theory of the subject or of many of its applications, and he is impressed by the power and sympathy of the teacher no less than by the ability of the scholar.

An interesting introductory chapter leads up to the establishment in its successor of the first principles of differentiation, and lays the foundation of a clear conception of the true significance of a differential coefficient. The rules for the differentiation of combinations of elementary functions are next discussed, whilst the third chapter is intended to confirm the knowledge already acquired, and to give reality to the principles, by employing them in some of the many directions in which they are valuable. Chapter IV takes up the consideration of the subject of integration, and here the necessity for an acquaintance with it is made abundantly evident by examples of unknown functions, whose differential coefficients are known. Processes of integration and applications of them then furnish the material for discussion, and chapters on logarithms and the exponential function, on trigonometrical functions, on definite integrals, and on their value in connexion with the problems of mechanics, form the contents of the latter part of the text-book, which closes with a valuable appendix. It is not possible here to consider the text in fuller detail; but there is no doubt that the work will be thoroughly acceptable both to students and teachers.

GENERAL NOTICES.

MATHEMATICS.

Practical Solid Geometry. By the Rev. P. W. Unwin, M.A. Cantab. (4s. 6d. Bell.)

The writer, who is evidently a thorough master of the subject he discusses, draws the attention of his readers to the value of practical solid geometry, both from an educational standpoint and as an instrument calculated to increase the power of the student of general mathematics when brought into contact with problems dealing with non-coplanar figures. The subject is one that presents much difficulty to many a student, but the clearness with which the first principles are explained in the opening pages of the treatise should prove a valuable guide in the early stages of study. The volume is intended to satisfy fully the requirements of candidates reading for the Board of Education Examination, Stage I, or for the Army Entrance Examinations. The text consists largely of worked problems. The earlier ones are very closely investigated, and the solutions are supplemented by many suggestive notes. The work is profusely illustrated with carefully reproduced diagrams. A number of questions are included which have actually appeared in Board of Education and in Woolwich and Sandhurst question papers. The preface alludes to a second volume now in course of preparation, and designed as the completion of a work covering the ground of Stages I, II, and III of the Board of Education Examination and that of the University of London Matriculation syllabus. The author is never tired of laying salutary stress on the great utility of models constructed by the student to illustrate the problems whose solutions he is trying to follow.

Geometry for Beginners. By C. Godfrey, M.A., and A. W. Siddons, M.A. (Cambridge University Press.)

The school text-book on geometry due to the same writers is by this time no longer a new work, and is doubtless well known to a large number of teachers and their pupils. The present volume furnishes a valuable introduction to the study of the science, and is suitable for those absolutely entering on their training. It is divided into two sections, of which the former discusses clearly, and in a manner thoroughly suggestive, first notions connected with geometrical figures and their measurement; moreover, it includes a preliminary treatment of the subject of angles. The latter subdivision of the treatise consists mainly of series of exercises which occur in pairs, one set leading up to the enunciation of some fundamental proposition, whilst its companion serves to show the application of the truth just formulated. An examination of the work will indicate to teachers that it owes its existence in a great measure to the suggestions lately made by the Board of Education.

SCIENCE.

Elementary Mechanics of Solids and Fluids. By A. Clement Jones, M.A., Ph.D., Senior Mathematical Master, and C. H. Blomfield, M.A., B.Sc., Mathematical Master, Bradford Grammar School. (4s. 6d. Edward Arnold.)

Instead of the time-honoured practice of taking statics, hydrostatics, and dynamics as distinct subjects, the authors "have attempted so to arrange the more elementary parts of these three subjects that they can be conveniently studied together." Substantially, we imagine, they will be found to have worked out a successful scheme of well ordered progress. The exposition is concise and lucid, and the large number of well selected and well devised exercises cannot but drive home the principles. Answers are appended. There are 186 figures. A thoroughly practical book.

A Text-book of Botany for Students; with Directions for Practical Work. By Amy F. M. Johnson, B.Sc., Lecturer in Botany at Cheltenham Ladies' College. (7s. 6d. Allman.)

In the first two Parts—General Morphology and Histology—the practical work is set out at the end of each chapter and is expected to be worked through substantially, as a basis, before the chapter is read. Part III is concerned with the Physiology of Plants; Part IV with Ecology, briefly but very usefully; Part V is systematic and descriptive, and is intended for reference after some practical experience of the various members. Though intended primarily for the author's own classes, the book should be extremely helpful for the multifarious examinations of an elementary character. There are four hundred figures, which have been prepared with great pains and admirably produced. The work has been executed with assiduous care and with marked ability. It is exceptionally well got up in a flexible cover.

ENGLISH LITERATURE.

"Masters of Literature."—(1) *Scott.* By Prof. A. J. Grant. (2) *Fielding.* By Prof. Saintsbury. (3) *Carlyle.* By A. W. Evans. (4) *Defoe.* By John Masefield. (3s. 6d. net each. Bell.)

This new series is designed to present in handy volumes the finest passages of the greatest English authors. "A good collection of the best work of our prose masters, chosen carefully and deliberately in accordance with a definite principle, and suitably introduced with relevant biographical, critical, and bibliographical data, has long been a desideratum." This desideratum it is the aim of this series to supply. The execution of such a design is very much more difficult than it looks, and the result is always open to cavil. The selections, prose and verse, are linked together by explanatory notes showing the gist of the omitted portions. The introductions, which are substantial, explain the choice of the excerpts, their relief and relation to the whole body of the author's production. In each of the present volumes the design is executed with marked ability. The form is convenient, the type good, and the binding flexible and tasteful. Each volume is furnished with a newly drawn and expressive likeness of the author under treatment.

English Literature in the Nineteenth Century: an Essay in Criticism. By Laurie Magnus, M.A. (7s. 6d. net. Melrose.)

Mr. Magnus has "attempted in this volume not so much a history

of English literature between 1784 and the present day as a survey of that literature as a whole, and an essay in its criticism." Though the history is not set forth systematically (except so far as occasional tables indicate the chronological relations of authors), the work of the principal writers is reviewed in groups determined by its nature. Throughout all the narrative and discussion, Mr. Magnus keeps an open mind for tendencies, and for some formula that shall fairly and competently express the characteristics of the period. He writes with ample knowledge of the literature and of the best literary criticism, without compromising his independence of judgment. The style is facile, if sometimes overstrained. The work will be very instructive and suggestive to students, and it is sufficiently popular to claim and to reward the attention of general readers.

"Oxford Editions of Standard Authors."—Scott: (1) *The Bride of Lammermoor*; (2) *The Black Dwarf* and *A Legend of Montrose*. (2s. each. Henry Frowde—Oxford University Press.)

These are further volumes of an excellent edition, beautifully printed and excellently got up. (1) has fifty illustrations, and (2) twenty-one and thirty-five. The glossaries will be helpful to the Southron, and, perhaps, to younger denizens over the Border.

HISTORY.

The Normal Reign of George III. By Victor Allemandy. (2s. 6d. Normal Press.)

The author writes primarily for the use of students, but the book will appeal to a wider circle. Within its limits, it is a very satisfactory piece of work. The facts are drawn from trustworthy sources, and the narrative is enlivened by racy quotations from literary works of the day. The method of the book indicates an attempt to solve the problem of this kind of history writing—how to marshal successfully the information in order to preserve chronological sequence, and at the same time to avoid irritating digressions. The defects of the book are mainly due to the necessity for compression of much material into a small compass. Conciseness is sacrificed to clearness in the paragraph on Paoli (page 198), where no hint is given of the fact that he was the great Corsican patriot who aimed at regaining the independence of his native island and was something more than "a French exile in England." In the account of Burke the author might have spared us the somewhat tedious description of the "Dagger Speech" and given us instead a fuller exposition of Burke's political ideals. The chapter on "Wilkes and Liberty" puts the constitutional issues clearly and forcibly, yet with restraint. "Brindley" should be "Brinsley" (Sheridan); "De Launay," not "De Launy," was governor of the Bastille. The style is bright and lucid. Useful lists of questions are attached to each chapter. To such as want a succint yet interesting introduction to the history of George III's reign the manual should prove very acceptable.

History Teaching by Biographies. By Alice Eve, B.A., L.L.A. (2s. 6d. Charles & Dible.)

"The lessons in this book were prepared with the idea of making history more real by grouping the historical facts around the lives of certain men and women." There are collected here notes of lessons drawn from 55 B.C. to 1603 A.D. Each lesson has a definite aim, which is set forth at the beginning. The inexperienced teacher that uses this book need be under no misapprehension as to the method of presenting the subject if the plan suggested by the author is sedulously followed. The matter has been judiciously selected, but a few errors have crept in. In one paragraph we are told that John "put his seal" to the Charter; later on, however, occur the words: "Show picture of the King *signing* the Charter. . . . Other kings were also obliged *to sign* it"! Evidently the author has never seen either the original Charter ("preserved in the British Museum") or a facsimile of it. "Other kings" *confirmed* not the Charter of 1215, but that of Henry III. Again, Wolsey's justice as Chancellor ended with suits in which private individuals were concerned: when a matter touching Henry VIII's interests was in question, the will of his Majesty prevailed. In a future edition a list of reference works might be added. Teachers generally should find the book very useful.

Mr. Fisher Unwin has issued a cheap edition of *Sir Rowland Hill: the Story of a Great Reform, told by his Daughter* (3s. 6d.), with numerous illustrations. An extremely interesting work, including an account of the old postal system and of the efforts of some of the early postal reformers.

HYGIENE.

"New Library of Medicine."—*Air and Health.* By Ronald Campbell Macfie, M.A., M.B., C.M. (7s. 6d. net. Methuen.)

Dr. Macfie treats his large subject comprehensively and practically in a plain and popular style without infringement of scientific accuracy. He deals with the physical and chemical properties of the air, particularly in relation to health and disease; considers the physiology of respiration in its practical bearings; has much to say about dust, fog, germs, air-borne epidemics, and the like; discusses ventilation at length, both in its private and in its public aspects; reviews questions of climate and of "a change of air"; and concludes with the air treatment of consumption. "The nation first to realize the importance of open-air education, and to develop on a large scale a system of open-air education, will outstrip all rivals in the race of life. There is reason to believe that nothing will so increase the happiness, the health, the moral and mental sanity of the nation as open-air schools." The work is thoroughly competent and sensible.

Principles and Methods of Physical Education and Hygiene. By W. P. Whelpton, B.Sc., Master of Method in the University of Leeds. (4s. 6d. University Tutorial Press.)

Mr. Whelpton takes a broad philosophical view of his subject, and places his treatment on "a somewhat extensive and deep knowledge of the physical and physiological bases of human activities." He regards school life as "a whole in which physical and mental training merge in the pursuit of practical duties in which spirit, intelligence, and skill are more than brute strength." He treats at some length the historical and physical development of the theory and practice of physical education; physical education in relation to mind and body; the physical basis of life; the nervous system and the education of it; the organic life of the body, fatigue, exercise and growth, cleanliness, fresh air, bodily attitudes, care of the eye, and abnormalities of various kinds. Many of the matters handled in the first half of the work will be fresh to readers of most books on hygiene; and the historical survey and the exposition of principles are valuable additions to the ordinary scope of treatment. A very able and useful work.

From Cradle to School: a Book for Mothers. By the late Mrs. Ada S. Ballin. (1s. net. Constable.)

If it be true that "no household is complete without children," then it follows that the mother should know how to manage them; and mothers are not likely to chance upon a more comprehensive or sensible manual of instruction than the present volume. It sets out in simple and lucid language all "such matters as most intimately concern the health of children, both bodily and mental." The author knew her subject thoroughly, and has treated it with masterly directness and effect. No better book could be placed in the hands of a young woman that has begun to think of marriage.

The second edition (1908) of *School Hygiene*, by Robert A. Lyster, M.D., Ch.B., D.P.H., &c., County Medical Officer of Health for Hampshire, &c. (3s. 6d., Clive), contains a new chapter on medical inspection of schools. It is a thoroughly practical work, sound and lucid.

Messrs. George Bell & Sons issue a second edition, revised, of *Better Food for Boys*, by Eustace Miles, M.A., Amateur Champion at Tennis, &c. (1s. net).

ART.

The Craftsman's Plant Book. By Richard G. Hatton, Hon. A.R.C.A. Lond. (25s. net. Chapman & Hall).

The alternative title runs: "Figures of Plants selected from the Herbals of the sixteenth century, and exhibiting the finest examples of plant-drawing found in those rare works, whether executed in woodcuts or in copperplate engravings, arranged for the use of the decorator; with supplementary illustrations and some remarks on the use of plant-form in design." Several introductory chapters furnish the necessary historical and botanical explanations. There are over a thousand figures, besides more than twenty in the preliminary matter, and about sixty in an appendix. In view of the present revival of the use of plant-form in decorative work, these figures will appeal strongly to the artist, and especially to the designer and the craftsman. They fairly represent the whole range of plant-life; and they owe their merit (and their defects) very largely to their being drawings at first hand from Nature. "Full of decorative suggestion, and fine examples of treatment, they present the plants as they are known to ordinary people, with their character usually admirably expressed." Mr. Hatton has done excellent service in collecting the best and most helpful figures from the old herbals, which are both unwieldy and costly. The large and handsome volume will be very highly appreciated by those for whose use it has been prepared.

Photograms of the Year 1909. Edited by H. Snowden Ward, F.R.P.S. (2s. net. Dawburn & Ward.)

The volume reproduces a large selection of typical photographic pictures of the year, accompanied with instructive criticism. There are useful and suggestive preliminary articles upon pictorial photography in various countries. The collection is most varied and interesting, and the illustrations are effectively reproduced (by Carl Hentschel, Ltd.), and printed (by Neill & Co.) on first-quality art paper (by John Dickinson & Co.).

Messrs. Philip issue a fourth edition, revised and enlarged, of *The Manipulation of the Brush as applied to Design*, "a course of Brushwork for Elementary and Secondary Schools," by Stanley Thorogood, A.R.C.A., Head Master of the Burslem School of Art and Art Director to the Burslem Education Committee (4s. net). There are fifty-two plates, with useful introductory suggestions and directions.

Messrs. Jack have now completed the issue of their two excellent series, *The National Gallery* and *Wild Beasts of the World*—each in

seventeen parts (1s. net each), and containing a hundred plates in colour. Both will make handsome and instructive volumes.

ATLASES.

A Historical and Modern Atlas of the British Empire, specially prepared for students by C. Grant Robertson, M.A. Oxon., Fellow of All Souls College, Oxford, and J. G. Bartholomew, F.R.S.E., F.R.G.S. (4s. 6d. net, Methuen), "aims at providing both a geographical and historical companion to past history and present conditions, at illustrating in a reasonable compass and at a moderate price the origins, development, and form of the British Empire from the earliest times to the present day." There are sixty-four plates, with useful preliminary matters (gazetteer of countries and possessions, statistics, &c.), and many insertions (diagrams, summaries of events, &c.). The names of th editors guarantee the excellence of the work.

The "A.L." Pupils' Atlas of Physical and Political Geography (1s 3d. net, E. J. Arnold) appears in various editions, differing only in the four large-page local or district maps they contain. The edition before us is "Edition M," specialized by maps of the Midland Counties, the Northern Counties, Wales, and South-East England. The Atlas contains also thirty full-page (royal 4to) maps of different parts of the world, and six maps of the world devoted to physical, commercial, and other aspects. There are, besides, explanatory diagrams dealing with projections, scales, &c.; a collection of important geographical statistics; and a very full general index. The maps are boldly drawn, lettered, and coloured, and they are carefully up to date. Evidently great pains have been taken to provide and to present effectively the assistance that the pupil needs.

FIRST GLANCES.

EDUCATION.

Assistant Masters in Secondary Schools.—(1) Nineteenth Annual Report, 1909. (2) Report of an Inquiry into the Conditions of Service of Teachers in English and Foreign Secondary Schools. 2s. Bell.
[(2) Comprehensive and most valuable.]

Board of Education.—(1) Reports of the Art Examinations, &c. 6d. (2) Reports of the Science Examinations, &c. 6d. (3) Annual Report for 1908 of the Chief Medical Officer of the Board of Education. Cd. 1986. 8½d. Wyman.

Cambridge Local Examinations: Regulations, &c.

Carlisle: Sixth Annual Report of the Organizing Superintendent (Mr. Duckworth) to the Education Committee.

Johns Hopkins University Circular No. 8, 1909: Catalogue and Announcement for 1909–10 of the Medical Department. No. 9, 1909: Preliminary Register; Enumeration of Classes—first half-year.

L.C.C.—(1) Report of the Public Health Committee, with Report of the Medical Officer of Health of the County for the year 1908. 3s. 6d.; postage 4d. (2) Annual Report of the Proceedings of the Council. 1s.; postage 5d. King.

London: Royal College of Science.—Register of Old Students, compiled by the Old Students' Association. First issue. 1s. net. Lamley.

Manchester: Sixth Annual Report of the Education Committee, 1907–8.

Oxford Local Examinations: Regulations, &c., 1911.

Physical Education in Foreign Countries. Report on Replies to Questions circulated by the Joint Committee on Physical Education organized by the National League for Physical Education and Improvement. 6d. net. National League for Physical Education and Improvement, 11 Southampton Row, W.C.

Rome: Corso di perfezionamento per i Licenziati dalle Scuole Normali instituito presso la Regia Università degli studi di Roma. Annuario (Anno VI, 1909–10): compilato per cura del Secretario Dr. A. Bertini Calosso. Roma: Via della Dogana Vecchia, 29 (Palazzo Giustiniani).

MISCELLANEOUS.

Board of Agriculture and Fisheries. Useful leaflets.

Chemical Appointments, Official, A List of. Compiled by Richard B. Pilcher, F.C.I.S., Registrar and Secretary of the Institute of Chemistry. Third edition, revised and enlarged. 2s. net. Institute of Chemistry of Great Britain and Ireland, 30 Bloomsbury Square, W.C.

Gardening, One & All, 1910. Edited by Edward Owen Greening. 2d. Agricultural and Horticultural Association.
[Matter varied and good; illustrations numerous.]

Songs, Sacred, The People's. 1d. Leng.

THE PREVENTION OF THROAT TROUBLES.

THE number of men, women, and children who constantly suffer from Sore Throat, more especially at this season of damp and cold, presents a problem to the medical practitioner which has long given him very serious trouble. At last this problem has been solved, and the means has been found of putting an end to this distressing condition by a discovery which the medical profession hail as one of the most valuable gifts they have received from science.

The way in which this discovery has been made—the nature of the remedy, its powers, and the method of its application—Dr. Andrew Wilson, the eminent authority on Hygiene, describes in detail in his latest work, "The Prevention of Infectious Disease."

A GUARD AGAINST INFLUENZA.

Dr. Andrew Wilson touches the root of the trouble when he says in his work, "Most infectious ailments reach the body through the mouth: hence in times and seasons of influenza, diphtheria, or when scarlet fever and other zymotic ailments are in the air, it will be well to remind ourselves of the value of allowing a Formamint tablet to dissolve occasionally in the mouth. If influenza and other infectious troubles are acquired in crowded assemblies, the use of a Formamint tablet under such conditions may be relied on to ward off risks of infection."

Infectious ailments reach the body through the month; they develop in the throat, and Wulfing's Formamint is the name science has given to the recently discovered remedy for the evil—that is the gist of the matter. But more of Dr. Andrew Wilson's words are worth quoting and seriously reflecting over. He says:—

"No ailments are more powerful or annoying than those affecting the throat, nor are there any troubles in which it is more difficult by means of ordinary remedies to reach the parts affected."

MICROBES MADE HARMLESS.

That which Science has searched for and found at last, he tells us, "is a substance which shall exercise an antiseptic action and destroy microbes, without injurious effect either upon the mouth or on the body. Wulfing's Formamint comes to the front as an efficient remedy in Throat troubles by reason of its disinfective powers."

"In such ailments as 'Smokers' Throat,' 'Clergyman's Sore Throat,' and those affections which distress singers and speakers, Formamint is promptly effective, while in the treatment of children's complaints, Thrush, Inflammation of the Tonsils, &c., it has proved the greatest gift we have yet had from Science."

Invaluable as a preventive of infection—medical men and nurses now place a tablet in their mouths for that purpose after visiting patients suffering from infectious disease—Formamint, Dr. Andrew Wilson tells us, "is a germicide and a sweetener, effective in nature, and, above all, pleasant to use and capable of easy and instant application."

A FREE TRIAL.

To enable Formamint's many virtues to be tested, a sufficient supply will be sent free of charge to all applicants forwarding a post card to-day to the manufacturers, A. Wulfing & Co., 12 Chenies Street, London, W.C., mentioning the "Educational Times." An exceedingly interesting little book—"The Prevention of Infectious Disease"—by Dr. Andrew Wilson, the famous authority on Hygiene, will also be given free.

Formamint can be obtained from all Chemists in bottles containing fifty tablets, at 1*s.* 11*d.* per bottle.

Stimulated by the success of Wulfing's Formamint, many preparations claiming to be as good are being offered to the public.

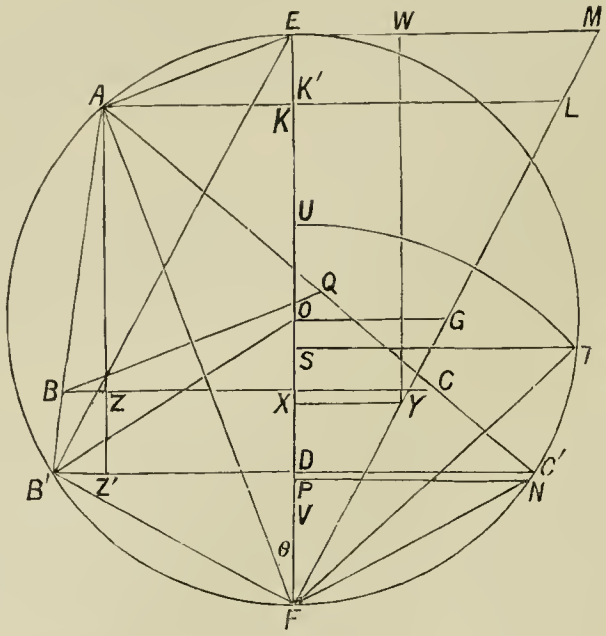
This claim is false. Formamint is manufactured under Royal Letters Patent. Any attempt to imitate it would render the imitators liable to prosecution. They have, therefore, not imitated its composition—only its form and flavour.

To obtain the certainty of cure of all forms of Sore Throat, insist on having Wulfing's Formamint. [Advt.

MATHEMATICS.

16692. (I. Arnold.)—Given the difference of the sides, the perpendicular on the base, and the vertical angle, to construct the triangle.

Solution by D. Biddle.



Let OF = the given perpendicular, OG = the given difference, and FOB′ = the given angle A. With OF as radius describe a circle, and produce FO to meet it in E. Then B′C′, drawn at right angles to EF, will be the base of a triangle which we can construct similar to that required, and having the same ratio (m = difference ÷ perpendicular = d/p). OG being at right angles with OF, join FG and produce to M (on the tangent to the circle at E). Then, taking EF as unity, EM = $m = d/p$. Moreover, B′E = $\cos\frac{1}{2}$A and B′F = $\sin\frac{1}{2}$A. Make FK′ = B′E, and draw K′L at right angles; then

$$K'L = m\cos\tfrac{1}{2}A.$$

Make FN = K′L, and draw NP perpendicular to EF; then

$$FP = m\cos^2\tfrac{1}{2}A.$$

Make FS = FD + FP, where FD = $\sin^2\frac{1}{2}$A; and draw ST at right angles; then $\quad FT = (m^2\cos^2\frac{1}{2}A + \sin^2\frac{1}{2}A)^{\frac{1}{2}}$.

Make FU = FT, and make UV = FB′ = $\sin\frac{1}{2}$A; then

$$FV = (m^2\cos^2\tfrac{1}{2}A + \sin^2\tfrac{1}{2}A)^{\frac{1}{2}} - \sin\tfrac{1}{2}A.$$

Make EW = FV, and draw WY parallel to EF, meeting FM in Y; also draw YX perpendicular to EF; then

$$FX = 1/m\left\{(m^2\cos^2\tfrac{1}{2}A + \sin^2\tfrac{1}{2}A)^{\frac{1}{2}} - \sin\tfrac{1}{2}A\right\}.$$

Make EA = FX = $\sin\theta$, and we have AB′C′ similar to the required triangle. From its perpendicular AZ′ mark off AZ = OF, and through Z draw BC parallel to B′C′. Then QC = the given difference (OG) between AC and AB, and ABC is the required triangle.

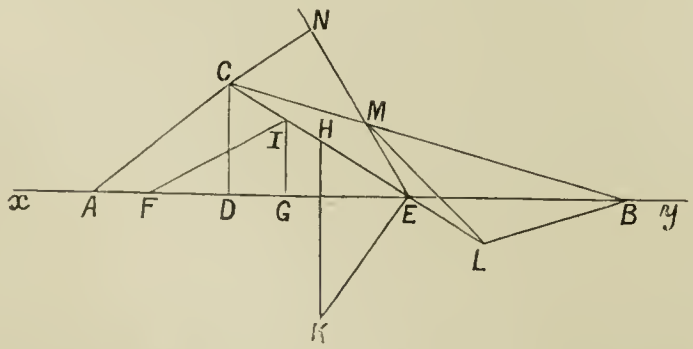
By analysis, it is easy to see that $p = \cos^2\frac{1}{2}A - \sin^2\theta$, whilst $d = 2\sin\frac{1}{2}A\sin\theta$; whence

$$\sin\theta = 1/m\left\{m^2\cos^2\tfrac{1}{2}A + \sin^2\tfrac{1}{2}A)^{\frac{1}{2}} - \sin\tfrac{1}{2}A\right\}.$$

The construction exactly follows this formula.

The Proposer's solution is as follows :—

Draw an indefinite right line xy, and at a point D erect the perpendicular DC equal to the given one. Make the angle DCE equal to one-half the given vertical angle. Also make EF equal to the difference of the sides. Bisect FE in G, and draw GI perpendicular, meeting CE in I. Bisect EC in H, and draw EK perpendicular to CE and equal to EI, and join KH. Produce CE to L, making HL = HK. Apply LB



to xy and equal to EK. Join CB. Draw EM, making the angle CEM equal to DEC and cutting CB in M. Then from C to the line xy apply CA equal to CM, forming the triangle ACB, which is the required one.

Upon EM produced let fall the perpendicular CN and join LM and FI. Now

$$LB^2 = EK^2 \text{ (const.)} = (HK + HE)(HK - HE)$$
$$= (HL + CH)(HL - HE) \text{ (v. 2)} = (HL + CH)(HL - HE) = CL.EL,$$

and therefore $\quad CL : LB = LB : EL.$

Consequently the triangles CLB, ELB are equiangular. Therefore

$$LBM = LEB = CED = CEM.$$

But HL = HK. Therefore, since the external angle CEM of the quadrilateral LEMB is equal to the opposite internal angle B, a circle will pass through the four angular points, and therefore ∠LMB = LEB. But ∠LBM = LEB; therefore LMB = LBM = FEI, and thus the triangles BLM and EIF, being isosceles and having LMB = EFI and also LB = EI, they will be equal in all respects, identical, and therefore BM = EF, and consequently BC − AC, or BC − CM, or BM = EF, the given difference. Also ∠CEN = CED (const.); then CN = CD; and, as CM = CA and ∠ACD = ∠MCN, adding DCM (which is common), we have $\quad ACB = DCN = 2DCE$ = the given vertical angle.

Therefore ABC is constructed as required.

16753. (*Communicated by* R. F. Davis, M.A.)—A. and B. started on their motor-cars from Liverpool to London, travelling at the same rate. One hundred miles from London A. overtook a carriage driving 9 miles an hour. Two hours later he met a bicyclist riding 12 miles an hour. B. overtook the carriage $73\frac{3}{4}$ miles from London, and met the bicyclist $\frac{60}{77}$ of a minute after passing the seventy-first milestone from London. Where was B. when A. got to London?

[This question recently appeared in the *Star* newspaper as a "Suggested Occupation for a Wet Saturday."]

[N.B.—It is possible to publish a few only of the Solutions sent in. —Ed.]

Solutions (I) *by* B. C. Wallis, B.Sc., F.C.P.; (II) *by* F. J. Neal: (III) Harold Boag.

(I) Let x = speed of motor-cars in miles per hour. Time interval between the cars overtaking the carriage $= \dfrac{100-73\frac{3}{4}}{9} = 2\frac{11}{12}$ hours.

Distance between cars $= 2\frac{11}{12}(x-9)$ miles. Distance traversed by bicyclist between passing the cars

$$= \text{(i)}\ \frac{12}{x+12} \text{ of } 2\tfrac{11}{12}(x-9) \text{ miles,} \quad \text{(ii)}\ (2x - 29 - \tfrac{1}{77}x) \text{ miles.}$$

Equating (i) and (ii), $\quad \frac{153}{77}x^2 - 40\frac{12}{77}x = 33,$

i.e., $153x^2 - 3092x - 2541 = 0$, *i.e.*, $(x-21)(153x+121) = 0$, $\quad x = 21$

When A. reached London B. was 35 miles away.

(II) Let rate per hour = x miles, let distance of London to Liverpool = P miles, let second car start y hours after first. Then difference in times of each car passing carriage $= \dfrac{26\frac{1}{4}}{9}$ hours; therefore

$$\frac{P-73\frac{3}{4}}{x} + y - \frac{P-100}{x} = \tfrac{105}{36};$$

therefore $$y = \frac{105x - 945}{36x} \quad\text{.....(1).}$$

Again, difference of times between meeting cycle

= (distance done by cycle)/(rate per hour);

therefore $$\frac{P - 71 + \frac{1}{77}x}{x} + y - \frac{P-100}{x} - 2 = \frac{P - 100 + 2x - P + 71 + \frac{1}{77}x}{12};$$

therefore $$348 + 12xy + \frac{397x}{77} - \frac{153x^2}{77} = 0;$$

therefore $$y = \frac{153x^2 - 397x - 26796}{924x} \quad\text{.....(2).}$$

Comparing (1) and (2), we obtain that

$$153x^2 - 3092x - 2541 = 0;$$

therefore $$x = \frac{3092 \pm \sqrt{[(3092)^2 + (4 \times 153 \times 2541)]}}{306};$$

therefore $$x = \frac{3092 \pm 3334}{306};$$

therefore $$x = 21 \text{ miles per hour.}$$

By substitution $y = 1\frac{2}{3}$ hours. When first car reaches London, second car is "xy" miles away. Therefore answer required = 35 miles.

(III) Let y be uniform rate of A. and B. in miles per hour, and x the start A. had in hours. Then xy is the distance between A. and B. at any point, and the required number of miles of B. from London when A. arrives there. The carriage goes $100 - 73\frac{3}{4}$ miles, while B. goes $100 - 73\frac{3}{4} + xy$; therefore

$$\frac{26\frac{1}{4}}{9} = \frac{26\frac{1}{4} + xy}{y} \quad \text{or} \quad xy = \tfrac{105}{4}(y-9) \quad\text{.....(i).}$$

A. goes $2y$ miles in 2 hours, and is therefore $100 - 2y$ miles from London, and B. $100 - 2y + xy$ when A. meets bicyclist. B. goes $\frac{1}{77}y$ miles in $\frac{60}{77}$ of a minute, and is therefore $71 - \frac{1}{77}y$ miles from London when he meets bicyclist. Therefore the bicyclist goes $(71 - \frac{1}{77}y - 100 + 2y)$

miles, while B. goes $(100-2y+xy-71+\frac{1}{77}y)$; therefore

$$\frac{71-\frac{1}{77}y-100+2y}{12} = \frac{100-2y+xy-71+\frac{1}{77}y}{y} \quad \text{.....(ii).}$$

Substituting in (ii) the value of xy obtained in (i), and simplifying

$$153y^2-3092y-2541 = 0, \quad (153y+121)(y-21) = 0;$$

therefore $y = 21$, and, substituting in (i), $xy = 35$. Therefore B. was 35 miles from London when A. arrived there.

16773. (Lt.-Col. Allan Cunningham, R.E.)—Resolve algebraically into two co-factors each of the numbers $N = (tu)^4 + 3(t^2 \mp u^2)^4$.

Ex.—Taking $t = 100$, $u = 1$. Resolve both N into prime factors if possible.

Solution by R. Norrie, M.A., *and the* Proposer.

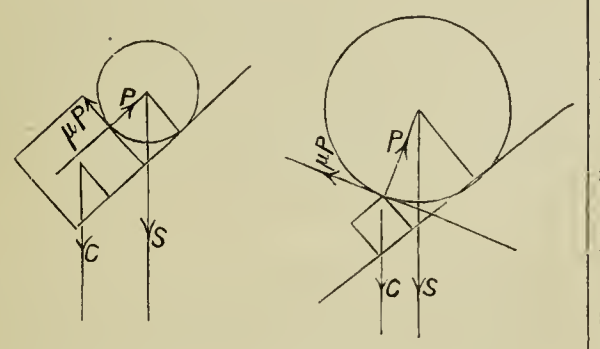
By inspection we see that the given expression is the product of the two factors $3t^4 \mp 3t^2u^2 + u^4$ and $t^4 \mp 3t^2u^2 + 3u^4$. Putting $t = 100$, $u = 1$, we derive

$$N_1 = 100^4 + 3.9999^4 = 99970003.299970001$$
$$= 7.151.271.349.61.1543.3187,$$
$$N_2 = 100^4 + 3.10001^4 = 19.163.32299.300030001.$$

The large factor 300030001 has no divisors < 1000.

12670. (Professor Hudson, M.A.)—A cube is placed on a rough inclined plane with four of its edges horizontal. A sphere is placed loosely on the plane above the cube, resting against it. The coefficients of friction between the different bodies being equal, find how, and for what inclination of the plane, equilibrium will be broken.

Solution by the Proposer.



Let r be the radius of the sphere, weight S; $2a$ the edge of the cube, weight C; P the pressure of the cube on the sphere; μP the friction between the cube and the sphere; the same acting in opposite directions on the cube; T, μT, the pressure and friction between the cube and the plane; α the inclination of the plane to the horizon when motion is about to begin.

First suppose $r < 2a$. For the sphere, take moments about its point of contact with the plane, whence we obtain $P(1+\mu) = S\sin\alpha$. For the cube, resolve parallel and perpendicular to the plane;

$$C\sin\alpha + P = \mu T, \quad T = C\cos\alpha + \mu P,$$

Eliminating P, T, we obtain $\tan\alpha = \mu C/[C+(1-\mu)S]$. If α has a value greater than that thus determined, the cube will slip and the sphere roll.

To consider whether the cube will topple, take moments about the lowest edge of the cube,

$$Pr - \mu P.2a = Ca(\cos\alpha - \sin\alpha),$$

whence $\tan\alpha = (1+\mu)aC/[(r-2\mu a)S + (1+\mu)aC]$.

It will be found that this value of α is greater than the former; therefore slipping will occur for a smaller inclination than toppling.

Next suppose $r > 2a$. The force P will now make an angle θ with the inclined plane, where $r\sin\theta = r-2a$. Proceeding, as before, we have

$$P[\cos\theta + \mu(1-\sin\theta)] = S\sin\alpha,$$
$$C\sin\alpha + P(\cos\theta - \mu\sin\theta) = \mu T, \quad C\cos\alpha + P(\sin\theta + \mu\cos\theta) = T.$$

Eliminating P, T, we obtain

$$\tan\alpha = \mu[\cos\theta + \mu(1-\sin\theta)]C$$
$$/\{[\cos\theta + \mu(1-\sin\theta)]C + [(1-\mu^2)\cos\theta - 2\mu\sin\theta]S\}.$$

Thus, if α has a value greater than that determined, the cube will slip and the sphere roll.

For toppling, take moments about the lowest edge of the cube,

$$P.2a(\cos\theta - \sin\theta) - \mu P.2a(\cos\theta + \sin\theta) = Ca(\cos\alpha - \sin\alpha),$$

whence we obtain

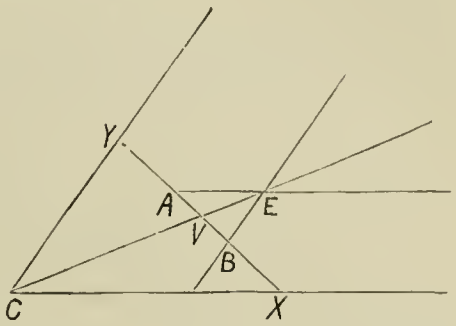
$$\tan\alpha = [\cos\theta + \mu(1-\sin\theta)]C$$
$$/\{[\cos\theta + \mu(1-\sin\theta)]C + 2[(1-\mu)\cos\theta - (1+\mu)\sin\theta]S\}.$$

It will be found that this value of α is greater than the former; therefore slipping will occur for a smaller inclination than toppling.

16727. (H. L. Trachtenberg, B.A.)—Prove that the centres of a four-point system of conics lie on a line, provided that two of the four points are at infinity.

Solutions (I) *by* Professor Nanson; (II) *by* W. F. Beard, M.A.; (III) A. H. S. Gillson.

(I) The centre locus of a pencil of conics is a conic bisecting the join of any two vertices. Hence, when two of the vertices are at infinity, the conic centre locus has at least five points at infinity, and therefore breaks up into the line at infinity and a finite line which is clearly a diagonal of the parallelogram formed by parallels to the asymptotes through the two finite points. It is easily seen, analytically, that the locus is $(x-x')(y-y') = (x-x'')(y-y'')$, where $x'y'$, $x''y''$ are the two finite points, the axes being parallel to the asymptotes.



(II) Let A, B be two of the points, and let the other two points be at infinity on AE, BE respectively. Let C be the centre of a conic through the four points. Draw CX, CY parallel to AE, BE, meeting AB at X, Y. Bisect AB at V. Join CV, EV. CX, CY are the asymptotes of the conic; therefore BX = AY; therefore VX = VY. The triangles AEB, CXY are clearly similar, and EV, CV are corresponding medians; therefore

$$\angle CVX = \angle AVE;$$

therefore CVE is a straight line; therefore the locus of C is the straight line EV.

N.B.—If AE, BE are parallel, all the conics are parabolas and the centres lie on the line at infinity.

(III) Let A, B, C, D be the four points, and take the straight lines AB, CD, as axes of x and y respectively. Then, if the equation of AC, BD be $ax+by+c = 0$, $a'x+b'y+c' = 0$ respectively, the equation of the four-point system of conics will be

$$(ax+by+c)(a'x+b'y+c') + \kappa xy = 0.$$

If, however, two of the points, B and D say, are on the line at infinity, the equation of the straight line joining them will be

$$0, x+0, y+c' = 0,$$

so that the equation of the system of conics reduces to

$$c'(ax+by+c) + \kappa xy = 0.$$

Hence, if (ξ, η) be the centre of any conic of the system,

$$\kappa\eta + ac' = 0, \quad \kappa\xi + bc' = 0,$$

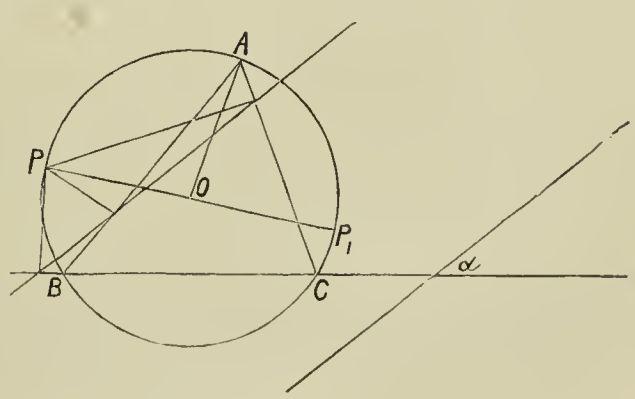
so that the locus of the centres of all such conics is the straight line

$$ax - by = 0.$$

16767. (M. T. Naraniengar, M.A.)—Find, by a geometrical construction, the point on the circum-circle whose Simson line is parallel to the Euler line.

Solution by Professor Sanjána, M.A., *and* R. Iata.

Let the Euler line (or any other given straight line) make with BC the angle α; and suppose O to be the circum-centre. Join OA. Make



$\angle AOP_1$ (in the same sense as α) of magnitude 2α, and produce P_1O to meet the circle in P. Then P is the required point. The proof depends on the fact that the Simson line of P makes with BC an angle which stands on the arc AP_1 at the circumference.

12392. (R. Knowles, B.A.)—In any triangle, prove that

$$bc = (s-c)^2 + 2(s-b)(s-c) + r_b^2 - 2(2R\cos C - r)r_b.$$

Solutions (I) *by* F. G. W. Brown, B.Sc., L.C.P.; (II) *by* B. C. Wallis, B.Sc., F.C.P.; (III) *by* C. M. Ross, B.A.; (IV) *by* W. H. Rees, B.Sc.

(I) Rewriting the expression, we have

$$\cos C = \{(s-c)^2 + 2(s-b)(s-c) + r_b^2 + 2rr_b - bc\}/4(Rr_b).$$

Putting $R = abc/4\Delta$, $r = \Delta/s$, $r_b = \Delta/(s-b)$,

the right-hand expression becomes

$$(s-b)/abc\,\{(s-c)^2+2(s-b)(s-c)+\Delta^2/(s-b)^2+2\Delta^2/[s(s-b)]-bc\}$$
$$=(s-b)/abc\,\{(s-c)^2+2(s-b)(s-c)+[s(s-a)(s-c)](s-b)+2(s-a)(s-c)-bc\}$$
$$(s-b)/abc\,\{(s-c)^2+[s(s-a)(s-c)]/(s-b)+2c(s-c)-bc\}$$
$$=1/abc\,\{bc(s-c)+2c(s-c)(s-b)-bc(s-b)\}$$
$$=(a^2+b^2-c^2)/2ab \quad [\text{on putting } s=\tfrac{1}{2}(a+b+c)]$$
$$=\cos C.$$

(II) $2R\cos C = c(\cot^2\frac{1}{2}C-1)/2\cot\frac{1}{2}C$

$$= r(\cot^2\tfrac{1}{2}C-1)/2\cot\tfrac{1}{2}C(\cot\tfrac{1}{2}A+\cot\tfrac{1}{2}B),$$
$$r_b=(s-c)\cot\tfrac{1}{2}A = r\cot\tfrac{1}{2}A\cot\tfrac{1}{2}C, \quad (s-c)^2 = r^2\cot^2\tfrac{1}{2}C,$$
$$2(s-c)(s-b) = 2r^2\cot\tfrac{1}{2}B\cot\tfrac{1}{2}C,$$
$$(s-c)^2+2(s-c)(s-b)+r_b^2-2(2R\cos C-r)r_b$$
$$=r^2(\cot^2\tfrac{1}{2}C+2\cot\tfrac{1}{2}B\cot\tfrac{1}{2}C+\cot^2\tfrac{1}{2}A\cot^2\tfrac{1}{2}C-\cot^2\tfrac{1}{2}A\cot^2\tfrac{1}{2}C+\cot^2\tfrac{1}{2}A$$
$$-\cot\tfrac{1}{2}A\cot\tfrac{1}{2}B\cot^2\tfrac{1}{2}C+\cot\tfrac{1}{2}A\cot\tfrac{1}{2}B+2\cot\tfrac{1}{2}A\cot\tfrac{1}{2}C)$$
$$=r^2(\cot^2\tfrac{1}{2}A+\cot\tfrac{1}{2}A\cot\tfrac{1}{2}B+\cot\tfrac{1}{2}A\cot\tfrac{1}{2}C+\cot\tfrac{1}{2}B\cot\tfrac{1}{2}C)$$
$$+r^2(\cot\tfrac{1}{2}A\cot\tfrac{1}{2}C+\cot\tfrac{1}{2}B\cot\tfrac{1}{2}C+\cot^2\tfrac{1}{2}C-\cot\tfrac{1}{2}A\cot\tfrac{1}{2}B\cot^2\tfrac{1}{2}C)$$
$$=r^2(\cot\tfrac{1}{2}A+\cot\tfrac{1}{2}B)(\cot\tfrac{1}{2}A+\cot\tfrac{1}{2}C)=bc,$$

since

$$\cot\tfrac{1}{2}A\cot\tfrac{1}{2}C+\cot\tfrac{1}{2}B\cot\tfrac{1}{2}C+\cot^2\tfrac{1}{2}C-\cot\tfrac{1}{2}A\cot\tfrac{1}{2}B\cot^2\tfrac{1}{2}C$$
$$=s/(s-b)+s/(s-a)+s(s-c)/[(s-a)(s-b)]$$
$$-s/(s-c).s(s-c)/[(s-a)(s-b)]$$
$$=[2s^2-s(a+b+c)]/[(s-a)(s-b)]=0.$$

[Rest in *Reprint*.]

16735. (C. M. Ross, B.A.)—Having given that

$$y_1=\frac{x_2x_3\ldots x_n}{x_1},\quad y_2=\frac{x_3x_4\ldots x_1}{x_2},\quad \ldots,\quad y_n=\frac{x_1x_2\ldots x_{n-1}}{x_n},$$

prove that the value of the Jacobian of $y_1, y_2, \ldots, y_n$ is

$$(-1)^{n-1}(n-2)\,2^{n-1}(x_1x_2\ldots x_n)^{n-3}.$$

Additional Solution by Professor Nanson.

We have $dy_p/dx_q=\epsilon y_p/x_q$, where ϵ is -1 or $+1$ as $p=$ or $\neq q$. Hence, if J is required Jacobian, and $a_{pq}=\epsilon$,

$$J=(y_1\ldots y_n)/(x_1\ldots x_n)\,|a_{pq}|=(x_1\ldots x_n)^{n-3}(n-2)(-2)^{n-1},$$

inasmuch as if $a_{pq}=a$ when $p=q$, and $a_{pq}=b$ when $p\neq q$, then clearly $|a_{pq}|=(a-b)^{n-1}[a+(n-1)b]$.

16656. (F. G. W. Brown, B.Sc.)—Calculate the lengths of the sides of a triangle ABC, having given the semi-perimeter s, the area Δ, and the distance between the centres of the in- and the circum-circles, d. Show that, if $d^2=\Delta(1-a/s)$, the triangle is right-angled isosceles, a being the hypotenuse.

Solution by the Proposer.

If R, r = radii of circum- and in-circles respectively, $d^2=R^2-2Rr$, and $r=\Delta/s$; therefore $sR^2-2R\Delta-d^2s=0$; giving

$$R=[\Delta+\sqrt{(\Delta^2+d^2s^2)}]/s,$$

Again, if a, b, c are the sides, then

$$abc=4\Delta R=4\Delta/s\,[\Delta+\sqrt{(\Delta^2+d^2s^2)}]\quad\ldots\ldots\ldots\ldots(1).$$

Also $\quad \Delta^2=s(s-a)(s-b)(s-c)=-s^4+s^2(ab+bc+ca)-abcs$;

therefore

$$ab+bc+ca=(\Delta^2+s^4+abcs)/s^2=[5\Delta^2+s^4+4\Delta\sqrt{(\Delta^2+d^2s^2)}]/s^2\ldots(2).$$

Finally, $\quad a+b+c=2s\quad\ldots\ldots\ldots\ldots(3).$

Hence, from (1), (2), (3), a, b, c are the roots of the cubic

$$x^3-2sx^2+x/s^2[5\Delta^2+s^4+4\Delta\sqrt{(\Delta^2+d^2s^2)}]-4\Delta/s\,[\Delta+\sqrt{(\Delta^2+d^2s^2)}]=0.$$

As a particular example, when $\Delta=84$, $s=21$; $d=\frac{1}{8}\sqrt{(65)}$, this cubic reduces to $x^3-42x^2+587x-2730=0$, giving

$$(x-13)(x-14)(x-15)=0,\quad\text{or}\quad x=13,\ 14,\ 15,$$

the sides of this particular triangle.

If the triangle is right-angled isosceles,

$$b=c=a/\sqrt{2},\quad \Delta=\tfrac{1}{2}bc=\tfrac{1}{4}a^2,\quad R=abc/4\Delta=\tfrac{1}{2}a=\sqrt{\Delta};$$

therefore $\quad d^2=R^2-2Rr=\Delta-a\Delta/s=\Delta(1-a/s).$

QUESTIONS FOR SOLUTION.

Correction.—In Question 16795 (*v. Educational Times*, January, 1910), *for* "when they are one tangent to the quartic," *read* "when they are tangent to the quartic."

16805. (A. H. S. Gillson.)—Show that, in a Holonomic dissipative dynamical system possessing n degrees of freedom, the stationary integral in Hamilton's principle is

$$\int_{t_0}^{t}\left\{\delta T+\sum_{j=1}^{n}\left(Q_j-\frac{\partial F}{\partial \dot q_j}\right)\delta q_j\right\}dt,$$

where $q_1, q_2, \ldots, q_n$ denote the generalized co-ordinates of the system, F denotes Rayleigh's dissipation-function, and $\sum_{j=1}^{n} Q_j.\delta q_j$ denotes the total work done in a general arbitrary small displacement by the external forces (not including the resistances) acting upon the system.

16806. (J. H. M.)—A homogeneous circular cylinder floating in water is tethered to the bottom of a reservoir by a light line attached to the centre of its base. Show that for stability of the upright position the length of cylinder immersed must not be less than $\sqrt{(\sigma l^2-a^2/2)}$, where a is the radius of the cylinder, l its length, and σ its specific gravity.

16807. (D. Edwardes, B.A.)—If $\alpha+\beta+1>\gamma>\beta>0$, prove that

$$\int_0^1\int_0^1 x^{\beta-1}(1-x)^{\gamma-\beta-1}(1-y)^{\alpha+\beta-\gamma}(1-xy)^{-\alpha}\,dx\,dy$$
$$=\frac{\Gamma(\beta)\Gamma(\gamma-\beta)}{(\alpha-\gamma+1)(\beta-\gamma+1)\Gamma(\gamma-1)}\left\{\frac{\Gamma(\gamma-1)\Gamma(\alpha+\beta-\gamma+1)}{\Gamma(\alpha)\Gamma(\beta)}-1\right\}.$$

16808. (Lt.-Col. Allan Cunningham, R.E.)—Show how to resolve $N=(x^6+27y^6)$ into five factors algebraically for certain (integer) values of x, y. *Ex.*—Give one or more examples of $N>10^3$ completely resolved into prime factors.

16809. (R. Norrie, M.A.)—Show that the expression

$$(x^2y-y^2z-\lambda z^2)^4+\lambda(x^3-2xyz)^4$$

is always the product of two rational, algebraical integral factors. If we replace λ by $\sum_{r=1}^{r=r}\lambda_r a_r^4-\sum_{s=1}^{s=s}\mu_s b_s^4$, we derive an expression of the form

$$P^4+\sum_{r=1}^{r=r}\lambda_r A_r^4-\sum_{s=1}^{s=s}\mu_s B_s^4,$$

which has always two known factors.

16810. ("Solidus.")—A problem connected with geometrography involves a series of integers satisfying the double recurrence formula $P_{2n}=4P_{n+1}$, $P_{2n+1}=2(P_{n+1}+P_{n+2})$, while $P_3=T$ and $P_4=Q$. Is it possible to find a general formula expressing P_n or P_{2n} or P_{2n+1} in terms of n? When n has certain special forms a formula can be found without much difficulty; *e.g.*, when $n=2^r+2$, $P_n=2^{2r-2}Q$, r being any integer greater than unity, and when

$$n=14+3(2^{r+2}-2^2),\quad P_n=2^{2r+5}(Q+T),$$

r being any integer.

16811. (A. M. Nesbitt, M.A.)—The $2n$ symbols $x_1, x_2, \ldots, x_n$, $y_1, y_2, \ldots, y_n$ are to be arranged (1) in a row, (2) in a ring; with the proviso that not more than two x's or two y's are to be together. In how many ways can it be done? What would the result be if the subscripts were entirely suppressed, the x's being indistinguishable and also the y's?

16812. (*Communicated by* C. M. Ross, B.A.)—Show that

$$\frac{1}{p+n}+\frac{n+1}{(p+n)(p+2n)}+\frac{(n+1)(2n+1)}{(p+n)(p+2n)(p+3n)}+\ldots\infty=\frac{1}{p-1},$$

if $p>1$ and $p+n>0$. (*Vide* C. Smith's *Algebra*, Ex. xxxiv, 12.)

16813. (G. Collis.)—Find the area of the closed portion of the folium $\quad r=(3a\sin\theta\cos\theta)/(\sin^3\theta+\cos^3\theta)$.

In what ratio does the line $x+y=2a$ divide the area of the loop?

16814. (Professor Neuberg.)—On projette un point quelconque M de la surface $xyz=m^3$ sur les plans coordonnés en A, B, C. Trouver l'enveloppe du plan ABC.

16815. (C. E. Youngman, M.A.)—A circle rolling on an equal circle will touch the resulting cardioide at points whose distance from the cusp is in each case $\frac{1}{4}$ of the radius, and will cut it orthogonally at seven times as far; the four points being collinear.

16816. (Professor Sanjána, M.A.)—Describe a central conic, having given the two foci and one pair of conjugate points.

16817. (S. Narayana Aiyar.)—If through a fixed point P on the directrix of the conic inscribed in the triangle ABC with S as focus, any variable straight line be drawn, and if points a, b, c be taken on this line such that the angles ASa, BSb, CSc are right angles, then the pedal circle with respect to S of the triangle formed by the straight lines Aa, Bb, Cc passes through a fixed point on the circum-circle of ABC. Find also in which positions of the varying line the straight lines Aa, Bb, Cc are concurrent, and in these cases show that, if Q be the point of concurrence, the circle on SQ as diameter passes through the fixed point on the circum-circle.

16818. (W. Gallatly, M.A.)—ABC being any triangle, to determine a point D on AB, a point E on BC, and a point F on CA, such that the triangle DEF is equal in all respects to ABC. What are the trilinear co-ordinates of the circum-centre of DEF?

16819. (S. Narayanan, B.A., L.T.)—If the Simson lines of three points D, E, F with respect to a triangle ABC be concurrent at S, then the Simson lines of A, B, C with respect to DEF are also concurrent at

the same point S. Also determine the position of S with respect to the triangles ABC and DEF.

16820. (W. F. Beard, M.A.)—The inscribed circle of a triangle ABC touches BC at D; r, r_1, r_2 are the radii of the inscribed circles of ABC, ABD, ACD. Prove $r_1 + r_2 > r$ and $< 2r$, and $r_1 r_2 < r^2$.

16821. (M. T. Naraniengar, M.A.)—Given the symmedian, the centre and radius of the circum-circle of a triangle, show that the locus of the centre of gravity is a circle.

16822. (Professor Nanson.)—If in a spherical triangle each side is equal to the opposite angle, show geometrically that two of the sides are quadrants.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

11531. (H. J. Woodall.)—The refractive index of a substance for a given ray of light is found from the formula

$$\mu = \sin \tfrac{1}{2}(A+D)/\sin \tfrac{1}{2}A,$$

where D is the minimum deviation of that ray when passing across an angle A of the substance. If the substance be liquid, the two faces (*i.e.*, including the angle) must be defined by means of two plates (of some transparent solid) whose faces are accurately plane and parallel. If not parallel, there will be an error in the value of μ thus obtained. Find the correct value of μ under these circumstances, and, if necessary, give a good approximation.

11592. (Professor Ramaswami Aiyar, M.A.)—A variable tangent to a circle meets two fixed tangents in B and C, and determines with them a triangle whose circum-centre is O. Prove that the circum-circle of the triangle BOC touches a fixed circle.

11716. (Professor Nash.)—Prove that no number that is divisible by an odd power of a prime of the form $4p-1$ can be, and every other number is, the sum of two squares.

11778. (D. Biddle.)—Three equal straight rods, of length l, are cast on a plane so as to intersect each the other two. Find the mean area of the triangle enclosed; also of the hexagonal figure formed by joining the extremities of the rods.

12016. (Rev. T. C. Simmons, M.A.)—A straight line is divided by two random points. Show that the odds are 2 to 1 against the middle portion exceeding twice the geometric mean between the two end portions.

12149. (Professor Clifford, F.R.S.)—A triangle ABC has its vertices A, B jointed to two rods AD, BE, which can turn about the fixed points D, E; express the co-ordinates of the point C in terms of elliptic functions of a single parameter.

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It is requested that all Mathematical communications should be sent to the Mathematical Editor,

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, January 13th, 1910.—Sir W. D. Niven, President, in the chair.

Mr. J. H. Woolston was elected a member.

The following papers were communicated:—

"On the Theory of the Cubic Surface": Dr. H. F. Baker.

"On an Example of the Expansion of a Function in a Series of Polynomials": Dr. H. F. Baker.

"The Harmonic Functions associated with the Parabolic Cylinder": Mr. G. N. Watson.

"The Transformations of Coordinates which can be used to Transform one Physical Problem into another": Mr. H. Bateman.

"Note on a Former Paper on the Theory of Divergent Series": Mr. G. H. Hardy.

"On Homogeneous Oscillation of Successions of Functions": Dr. W. H. Young.

"On the Determination of a Semi-Continuous Function from a Countable Set of Values": Dr. W. H. Young and Mrs. Young.

"On Cyclic Congruences": Mr. J. E. Campbell.

Dr. H. de S. Pittard made an informal communication "On the Theory of Sets in Probabilities."

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Goodchild, A.T. St. John's Coll., Finsbury Pk.
Wright, P. *s.ms.* University S., Southport
Garrett, L.A. High S. for Boys, Croydon
Turner, A.G. Oakes Inst., Walton, Liverpool
Heald, J.H. *s.* Hutton Gram. S.
Whitford, J. *e.do.* St. Austell County S.
Wilkie, F.J. Mercers' School, E.C.
Banks, E. Avenue H., Sevenoaks
Catmur, H.A.F. *ms.* Cliftonville Coll., Margate
Norburn, A.H. *d.* Private tuition
Ogden, J.R. *s.* The Greystones S., Scarborough
Turner, E. Jersey Modern S., St. Heliers
McFarlane, J.M. Grosvenor Coll., Carlisle
Page, P. *s.* St. Leonards Coll. S.
Moss, R.E. Kendrick Boys' S., Reading
Clarke, G.J. *ms.* Kendrick Boys' S., Reading
Ford, N.L. High S. for Boys, Croydon
Sharpe, J. *bk.* Private tuition
Burrough, M.W. Langport Gram. S.
Joule, J.S. Brentwood High S.
Smithson, C.L. Archbp. Holgate's Gram. S., York
Brown, H.E. *s.* Shoreham Gram. S.
Hanna, J. Argyle H., Sunderland
Kingwell, L.S. *sh.* Private tuition
Clarke, H.B. Penketh School
Corless, A. Hutton Gram. S.
Babbage, N.J. Wallingbrook S., Chulmleigh
Buckell, J.H.W. *m.* St. Helen's Coll., Southsea
Schreier, R.S. Shoreham Gram. S.
West-Kelsey, F. *s.ms.* Private tuition
Bartlett, W.V. Christ's Coll., Blackheath
Portway, R.L. St. Helen's Coll., Southsea
Wilson, R.W.L. High S. for Boys, Croydon
Cartwright, L. *ms.* Private tuition
Sadler, N. Private tuition
Armstrong, A.R. Bourne Coll., Quinton
Hutchins, R.E. *d.* Private tuition
Tanton, S.A. St. Leonards Coll. S.
Woodford, H. The Greystones S., Scarborough
Minchin, H.N. Shoreham Gram. S.
Steere, F.B. *d.* Brighton Gram. S.
Higgs, R.D. The Palace S., Bewdley
Gray, W.S. Castle Hill S., West Ealing
Martin, E.C. St. John's Coll., Finsbury Pk.
Box, L.S. Grove H., Highgate
Price, N.L.T. Brentwood High S.
Whillock, G.E.B. The Greystones S., Scarborough
Ordish, B.W.A. Mercers' School, E.C.
Speeding, R.J. High S. for Boys, Croydon
Rankine, J.B.C. Highfield S., Muswell Hill
Sparks, E. *d.* Mercers' School, E.C.
Oldham, E.C. St. James's Coll. S., Jersey
Jackson, N. Oakes Inst., Walton, Liverpool
Briercley, H. *ms.* Oakes Inst., Walton, Liverpool
Hewitt, H.H. Private tuition
Banks, C.N. Oakes Inst., Walton, Liverpool
Grimes, S.C. Private tuition
Matthews, C.H. Broomy Hill Acad., Hereford
Jeffery, H.E. St. John's Coll., Finsbury Pk.
Johnson, V.R.W. Kendrick Boys' S., Reading
Davidson, C.C. Private tuition
McDonald, A. *d.* Private tuition
Simmons, P.N. Grove H., Highgate
Fuller, H.A. St. Leonards Coll. S.
Skey, C.O. Cliftonville Coll., Margate
Gough, N. The Palace S., Bewdley
Hendra, E.A.G. Private tuition

SECOND CLASS [or JUNIOR].

Honours Division.

Le Masurier, C. *g.al.gm.ms.f.* Jersey Modern S., St. Heliers
Dawson, G.G. *al.gm.lt.ma.ch.* Tollington S., Muswell Hill, N.
Rolfe, H.W. *al.gm lt.ch.d.* Tollington S., Muswell Hill, N.
Bell Bonnett, V.W.A. *al.lt.ch.* Tollington S., Muswell Hill, N.
Gray, S.A. *al.gm.lt.ch.* Tollington S., Muswell Hill, N.
Weeden, A.D. *al.lt.* Tollington S., Muswell Hill, N.
Flower, F.G. *a.al.f.* Richmond Hill School
Young, A. *al.* Mercers' School, E.C.
Bremner, N.G. *a.ch.* Tollington S., Muswell Hill, N.
Williams, A.L. *al.lt.ch.d.* Northern Poly. Day S., N.
Damant, C.A.S. *a.al.gm.lt.ch.* Tollington S., Muswell Hill, N.
McDougall, A.P. *g.gm.f.* Tollington S., Muswell Hill, N.
Forrer, L. *s.al.f.* Bedford H., Folkestone
King, R. *d.* Mercers' School, E.C.
Haslam, D.E. Tollington S., Muswell Hill, N.
Lardner, R.S. Tollington S., Muswell Hill, N.
Burgess, F.J. *a.al.f.* Mercers' School, E.C.
Bull, S.A.C. *al.lt.* Tollington S., Muswell Hill, N.
Shelton, N.O. *al.gm.ch.* Tollington S., Muswell Hill, N.
Cleaver, A.H. *s.* Mercers' School, E.C.
Arrowsmith, E. *s.gm.* Argyle H., Sunderland
Saer, E.H. *s.h.* Bedford H., Folkestone
Robinson, H.E. *al.ch.* Tollington S., Muswell Hill, N.
Drucc, J.G.F. *s.ch.* Kendrick Boys' S., Reading
Coles, K.G. *al.ch.* Tollington S., Muswell Hill, N.
Ferguson, D.W. *ch.* St. Olave's Gram. S., S.E.
Payne, H.A. *al.* Tollington S., Muswell Hill, N.
Miles, F.W. *al.lt.ch.* Tollington S., Muswell Hill, N.
Du Heaume, H.G. *f.d.* Boys' Coll. S., Aldershot
Kirton, C.A. *g.al.* Brighton Gram. S.
Lane, R.E.N. *g.d.* Weymouth P.-T. Centre
Swift, S.A. *d.* Tollington Park College
Walliker, L.C. *s.* Wilsford H., Devizes
Wright, C. *gm.lt.ch.* Northern Poly. Day S., N.
Evelyn, A. *ch.* Sir James Smith's Gram. S., Camelford
Johnson, W.C. *gm.* Kendrick Boys' S., Reading
Cover, G.W. *a.* Collegiate S., Bournemouth
de Gruchy, T.R. Clair-Val S., Gorey, Jersey
Hall, W.J. Tollington S., Muswell Hill, N.
Whipp, P.S. *al.gm.bk.* Shoreham Gram. S.
Gibaut, L.J. *a.f.* St. James's Coll., Jersey
Rich, F.H. Tollington S., Muswell Hill, N.
Comoy, P.D. *al.f.* Mercers' School, E.C.
O'Neill, W. St. Mary's Coll., Middlesbro'
Paton, W.L. Oakes Inst., Walton, Liverpool
Gunson, W.H. *d.* Saham Coll., Watton
Legg, W.V. *ch.d.* Esplanade H., Southsea
Fitton, W. *al.* Southport Commercial Coll.
Graddon, W.D. Tollington S., Muswell Hill, N.
Welsh, R. *s.h.* Bridlington College
Batley, J.W. *al.* Shoreham Gram. S.
Bolton, P.L. *al.f.* Hutton Gram. S.
Andreas, G.E. *al.* St. John's Coll., Finsbury Pk.
Mair, A. *s.al.* North Devon S., Barnstaple
Bean, P.L. High S. for Boys, Croydon
Gresty, A.L. *ch.* Penketh School
Flower, N.L. The College, Clevedon
Hogg, J. *bk.f.* Collegiate S., Bournemouth
Parry, J.S. *d.* Christ Church Hr. Elem. S., Southport
Cattle, J.H.N. *f.* Scarborough College
Hutchings, C.E. *s.* Castle Hill S., West Ealing
Price, G.W.H. *d.* Weymouth P.-T. Centre
Stuckey, C.L. *al.* Mercers' School, E.C.
Whitelaw, G.S. *lt.* Tollington S., Muswell Hill, N.
Monkman, E.A. *s.f.sh.* Croad's S., King's Lynn
Scott, T.H.H. *d.* High S., Market Drayton
Tibbotts, A.H. Wilsford H., Devizes
Toye, R.C.H. *f.* Bedford H., Folkestone
Wesley, E. *s.d.* Tollington Park College
Beaumont, E.V. *al.f.* Kensington Coaching Coll., S.W.
Chiswell, R.M. Mercers' School, E.C.
Davey, N.H. *gm.* New College, Harrogate
Griffin, C.C. *al.* Mercers' School, E.C.
Jones, H.D.L. *lt.* Private tuition
Metcalfe, W. *d.* Bridlington College
Cook, R.F. Tollington S., Muswell Hill, N.
Gilfillan, N. Tollington S., Muswell Hill, N.
Grist, R.R. *s.al.* Torbay Coll., Chelston, Torquay
Piper, G. Argyle H., Sunderland
Rowson, R.H. *d.* Penketh School
Woods, C.S. *e.* Tollington Park College, N.
Beauchamp, W.S. *al.f.* Private tuition
Eglinton, J.H.C. *s.* Rydal Mount S., Colwyn Bay
Langdale-Kelham, R.D. *l.gr.* 30 Compton Avenue, Brighton
Sharp, G.R. Newquay College
Escaré, C.A. *al.* Thornton Heath School
Mitchell, G.A. Oakes Inst., Walton, Liverpool
Cothill, W.T.H. Boys' High S., Warcham
Milligan, W.H. *al.* Private tuition
Pappin, F.J. Tollington S., Muswell Hill, N.
Walton, C.D. *gm.ch.* Penketh School
Allen, S.B. Barton S., Wisbech
Barber, H. *g.* New College, Harrogate
Brown, A. The College, Weston-s.-Mare
Browning, H.O. Gunnersbury S., Chiswick
Jefferies, C.H. *d.* St. Paul's S., W. Kensington
Kampe, G.E. *a.* Tollington Park College, N.
Leadbeater, R.W. *f.* Seaford College
Mantle, F.N. *ch.* Tollington S., Muswell Hill, N.
Miller, F.J. Seaford College
Platt, C.E. *d.* Brighton Gram. S.
Smith, E.F. *ch.* Hutton Gram. S.
Thomas, A.E. *al.* Froebel H., Devonport

BOYS, 2ND CLASS, HONS.—*Continued.*

Bradfield, G.R.D. *s.al.* King's Coll., Taunton
Claff, H. *he.* Christ Church Hr. Elem. S., Southport
Fox, C.P. Mercers' School, E.C.
Simmonite, C. *d.* Derwent H., Bamford
Wallace, D.J. *f.* Mercers' School, E.C.

Broad, E.T. *d.* Bradley High S. for Boys, Newtou Abbot
Edmondson, H.B. Tollington S., Muswell Hill, N.
Pinder, S.H. *lt.* Tollington S., Muswell Hill, N.

Abram, R. Hutton Gram. S.
Buchan, H.F. *f.* Private tuition
Reynolds, A. St. Mary's Coll., Harlow
White, W.H. *a.al.f.* Private tuition

Anderson, E.V. St. John's Coll., Finsbury Pk
Haines, G.H. *f.* Private tuition
Percival, H.S. Tollington Park College, N.

Hurley, J. Mercers' School, E.C.
Speak, J. Leighton Hall S., Carnforth

Collins, W. *al.f.* Private tuition
Cooper, A. Mercers' School, E.C.

SECOND CLASS [or JUNIOR].

Pass Division.

[1]Law, I. Hutton Gram. S.
[1]Beavis, J.H. St. John's Coll., Finsbury Pk.
[1]Bernard, A.S. *bk.* Brondesbury College

Cocker, W.L. *f.* Private tuition
Flack, W. *al.gm.f.ch.* Private tuition
Germain, E.R. *al.ch.* Bishops' Stortford Coll.
Hewett, L.P. Castle Hill S., West Ealing
Jones, H.C.B. *al.gm.* Shoreham Gram. S.
Robinson, J.N. Hutton Gram. S.
Turner, J.V.H. *a.al.gm.f.* Shoreham Gram. S.

Freeman, J.E. *d.* Mercers' School, E.C.
Green, J.N.W. Mercers' School, E.C.
Lawton, N.T. New College, Harrogate
Smith, F.B. *d.* Weymouth P.-T. Centre
Tomkinson, C.W. *al.* Mossley Hall S., Congleton
[1]Tuffin, R. Shoreham Gram. S.

[1]Birch, H.J. Derwent H., Bamford
Chivers, W.E.D. *f.* Esplanade H., Southsea
Dickinson, W.A. *al.f.d.* Newcastle Modern S.

Bebb, R.H. Queen Mary's Gram. S., Walsall
Chamberlain, A.J. Bell's Gram. S., Coleford
Kennedy, D.M. *f.d.* Brighton Gram. S.

Brown, D.F. Thoruton Heath School
Milnes, P. *f.* Private tuition
[1]Robson, T. Private tuition

Flint, H. Tollington S., Muswell Hill, N.
Husbands, H.R.W. Marlborough Coll.
Pepin, A.F. *f.* Oxenford H., St. Lawrence, Jersey
Perrott, A.W. Bradley High S. for Boys, Newton Abbot
[1]Rose, S.H. Bridlington College

Atwill, S.G. *bk.* Hoe Gram. S., Plymouth
[1]Cooke, J. Private tuition
[1]Goad, A.J. *d.* Private tuition
[1]Pierce, W.C. St. Leonards Coll. S.
[1]Pratt, H.B. *s.* Shoreham Gram. S.
[1]Rix, S.M. Shoreham Gram. S.
Seifert, P.F. *gc.* St. John's Coll., Finsbury Pk.
Tomlinson, F.D.W. Tollington S., Muswell Hill, N.
Tyrrell, E.J. Private tuition

[1]Butler, G.McA. Tollington Park College, N.
Danby, H.N. *al.* Scarborough Gram. S.
Gantner, L.J. Tollington S., Muswell Hill, N.
Gibbs, F H. Bedford H., Folkestone
[1]Kennedy, F.H. *bk.* Hillmartin Coll., Busby Place, N.W.
Langsford, M.A. *s.* Castle Hill S., West Ealing
Mace, C.A. *s.* King Edward VI Middle S., Norwich
Moody, B.C. *d.mu.* Mile End H., Portsmouth
Pullen, L.P. Winchester H., Bristol
Richardson, A.W. Steyne S., Worthing

Mossop, F.H. *s.* Clair-Val S., Gorey, Jersey
Rhys, R.I. *f.* Private tuition
Sargeant, S.H. Commercial Coll., Acton

Filleul, D. Jersey Modern S., St. Helier's
Orton, R. *f.* Private tuition

Buckley, H.G. *d.* Bridlington College
Fletcher, J. Hutton Gram. S.
Gleaves, T.R. Mossley Hall S., Congleton
Palmer, G.W.R. Weymouth P. T. Centre
Pullen, H.W. Tollington Park College, N.
[1]Williamson, T.H. Oakes Inst., Walton, Liverpool

Corin, T.E. *al.* Froebel H., Devonport
Favrot, R. *f.* Shoreham Gram. S.
Fisk, V.G. Mercers' School, E.C.
[1]Gibson, W.S. High S. for Boys, Croydon
Goodison, F.B. *al.* Wintersloe, Moseley
Needle, A.E.C. High S. for Boys, Croydon

Acton, W.B. *g.* Civil Service Acad. & Comm. Coll., M'chester
Gummer, H.L., St. Mary's Coll., Harlow
Knowles, J.W. *al.* Barton S., Wisbech
Sergeant, J.F.McC. *f.ch* Private tuition

Carr, S.R. *f.* Private tuition
[1]Makinson, J. Oakes Inst. Walton, Liverpool
Mitchell, L. *al.* Laugharne S., Southsea
Renison, H. *ch.* Penketh School

Bell, D.J. Oakes Inst., Walton, Liverpool
[1]Bennett, H.B. Private tuition
Clements, E.T. Kendrick Boys' S., Reading
Coleman, G. *f.* St. Mary's Coll., Harlow
DeBourcier, H.L. *al.* Jersey Modern S., St. Heliers
Knight, W.S. Private tuition
Neate, T.S. Waterlooville Coll.
Sandford, O.E. King Edward VI Middle S., Norwich

Bailey, E.T. *mu.* Clapham Gram. S.
Broughton, W.H. *d.* Weymouth P.-T. Centre
Kernick, O *al.* Newquay College
[1]Payne, H.T. *s.* White Hall Coll., Witham
Sanders, F.E. *al.* Oakes Inst., Walton, Liverpool
Stacey, W. Hoe Gram. S., Plymouth

[1]Charoen, M.L. Arnold H., Chester
Dean, J.W. St. John's Coll., Finsbury Pk.
Firth, N. Bridlington College
Gambell, D.C. Seaford College
Holloway, W.J. *g.* The College, Clevedon
[1]Hughes-Williams, T. *w.* Private tuition
Lowe, C R. Weymouth Modern S.
[1]Milroy, D. Oakes Inst., Walton, Liverpool
Roberts, E.C. Seaford College

[1]Eady, B. St. Mary's Coll., Harlow
Edwards, G.H. Commercial S., Maidstone
[1]Forrester, H. High S for Boys, Croydon
[1]Rodriguez, C.E. Gunnersbury S., Chiswick
Sims, H.W. *d.* St. Olave's Gram. S., S.E.
Smith, G.A. Private tuition

Barnett, A E. The Douglas S., Cheltenham
Bryce, W.C. *ch.* Southport Modern S.
Butt, F.T.W. *g.* Wilton H., Exeter
Duffield, C.C. Waterlooville Coll.
Farnworth, A. *al.* Seven Thorns S., Higher Openshaw
Fitzgerald, C. Tollington S., Muswell Hill, N.
Ling, H.S. King Edward VI Middle S., Norwich
Metcalfe, A.N. Argyle H., Sunderland
Virgin, A.H. The School, Bishop's Stortford
Wallace, F.H. *f.* Private tuition
Wark, C. *al.* Castle Hill S., West Ealing
Winter, H.H. Alderman Norman's Endowed S., Norwich

[1]Amos, T. Gram. S., Sale
Barnden, P.W. Private tuition
Burrow, L.H. Mercers' School, E.C.
Craig, G.G. High S., Market Drayton
[1]Dickson, McT. The Middle S., Holsworthy
Higgs, S.C. Private tuition
Lloyd, T.J. *al.* Pencader Gram. S.
Russell, S.V. *al.* Castle Hill S., West Ealing
Scrimiger, J.K. *al.d.* Oakes Inst., Walton, Liverpool
Thirtle, N.W. *mu.* King Edward VI Middle S., Norwich

Copner, A.B. *f.* Beaumont Coll., Old Windsor
Hobson, F.B. Scarborough College
Kean, J.S. *d.* Modern S., Gravesend
Lee, N. *al.* Oakes Inst., Walton, Liverpool
Lindeman, S.J.L. Haileybury Coll., Hertford
Lucas, J. *al.f.* Jersey Modern S., St. Heliers
[1]McDougall, D.J. St. John's Coll., Finsbury Pk.
Newsome, N. Scarborough College
Richards, B.H.F. Gram. S., Steyning
[1]Scott, E. St. Mary's Coll., Harlow
[1]Taylor, G.W. Private tuition
Wilkinson, H. Argyle H., Sunderland
Williams, L. Private tuition

[1]Chenalley, E. Christ's Coll., Blackheath
Grape, D.H. *ch.* Lancaster Coll., W. Norwood
Hodgkinson, P. Penketh School
Littlejohns, C. *d.* Wallingbrook S., Chulmleigh
[1]Pye, D.R. Cliftonville Coll., Margate
Watkins, B.L. *al.* Bell's Gram. S., Coleford

Bourne, S.A. Derwent H., Bamford
[1]Crowder, A.D. King Edward VI Modern S., Macclesfield
Dixon, C.C. Private tuition
Howes, A.C. *ma.* Alderman Norman's Endowed S., Norwich
Meggs, A.H. *f.* Private tuition
Richards, K.J. Tollington S., Muswell Hill, N.
Smith, A.G. Modern S., Gravesend
Williams, L.H.T. *al.* Thornton Heath School

Bado, A.J. *sp.* Eastbourne College
Butler, W.G. The Palace S., Bewdley
Coombs, H.E. Littleton H., Knowle, Bristol
Hudson, H.B. Private tuition
Muller, C.H. Mercers' School, E.C.
Richards, E.I. Old College S., Carmarthen
Smyth, B.B.B. Private tuition
Steele, A.A. Argyle H., Sunderland

Beswick, W.T. Private tuition
Clarke, H.C. Froebel H., Devonport
Cohen, L.C. *al.* Private tuition
Drake, H.M. Private tuition
Francis, A.H. Southdown Coll., Willingdon, Eastbourne
Jessop, P.E. Private tuition
Nichols, A.A. Waterlooville College
Perry, S.F. *f.* Croad's S., King's Lynn
Reynolds, D.R. St. Paul's S., W. Kensington
[1]Rogans, J.A. Oakes Inst., Walton, Liverpool
Stephenson, E.L. *ch.* Bishop's Stortford Coll.

Buckley, H.H. Private tuition
[1]Gee, L. Langley Private S., Vicarage Rd., Langley
George, A.S. *d.* Private tuition
Goode, L. Shoreham Gram. S.
[1]Kappey, C.F.G. Shoreham Gram. S.
Kemplay, W. Archbp. Holgate's Gram. S., York
Plowman, L.W. St. John's Coll., Finsbury Pk.
Roper, R.L. Hoe Gram. S., Plymouth
[1]Shepherd, C.J. The Ferns, Thatcham
Shipman, F. Cambridge H., Camden Rd., N.
Wadbrook, W.H.E. Southampton Boys Coll. & High S.
Walker, F.R. Avenue H., Sevenoaks

Durrant, G. *d.* Oakes Inst., Walton, Liverpool
[1]Fenton, N.R. *do.* High S., South Shore, Blackpool
Lucas, H. Hutton Gram. S.
Montes O. *sp.* Summerleaze Coll. S., East Harptree
Morris, R.V. High S. for Boys, Croydon
Myddelton, C.T.H. Mercers' School, E.C.
Norden, F. High S. for Boys, Croydon
Place, T.B. Private tuition

Blythe, P.A. Tollington Park College, N.
[1]Brown, S.D. High S. for Boys, Croydon
Coope, T.E. Hutton Gram. S.
Du Feu, N. *f.* St. James Coll. S., Jersey
Fell, W.J. Grosvenor Coll., Carlisle
Grose, P. St. Olave's Gram. S., S.E.
Murray, C.E. Richmond Lodge. Torquay
Wilkinson, D. Hutton Gram. S.

Bull, W.M. Private tuition
[1]Chapman, A.H Richmond Hill School
Miller, R. Tollington S., Muswell Hill, N.
Rawlings, W.H. *al.ch.* Private tuition
Stroud, S.H. Private tuition
Wallis, A.B. *al.* Tynemouth School
Wigg, J. *f.* St. Mary's Coll., Harlow

Clayton, J. *f.* Private tuition
Gibson, C.C.G. Private tuition
Kolligs, F.F. Private tuition
Powlesland, J.N. Wallingbrook S., Chulmleigh
Smith, H.A. Gram. S., East Finchley
Turner, H. Ongar Gram. S.
[1]Walford, T.J. St. Mary's Coll., Harlow

Bond, R.E. Rastrick Gram. S., Brighouse
Collier, T.L. St. Dunstan's Coll., Margate
Grant, N. Victoria Park S., Manchester
Hansen, C.F. Gram. S., Steyning
Hill, L. *f.* St. Mary's Coll., Harlow
Llarena, E.F. *f.* Dulwich College
Mountford, H.R. Bewdley Gram. S.
Rivers, F. Ryde H. Comm. S., Ripley
Wells, W.S. Commercial S., Maidstone

Anderson, G.F. High S. for Boys, Croydon
Forrer, R.F. *al.f.* Bedford H., Folkestone
Hammond, R.E. Comm. S., Stratford-on-Avon
Kirby, P.E.R. *f.* 30 Compton Avenue, Brighton
Lovett, E.W. Comm. S., Stratford-on-Avon

[1]Bennett, G.H. 57 Lansdowne St., Hove
Clarke, F.L. Margate Comm. S.
Gutch, C.G. *bk.* Hillcroft S., Mortimer
Husbands, R.G.W. King's Coll., Taunton
Linfield, H.J. Brighton Gram. S.
Luck, L. Brighton Gram. S.
[1]Mason, R.C.R. Private tuition
Middleton, L.N. Private tuition
Moysey, L.J.S. *f.* Waterlooville College
Parsonage, F.H. Academy, Crewe
Phillips, G H. North Devon S., Barnstaple
Redman, R. Hutton Gram. S.
[1]Sinclair, L.J.H. High S. for Boys, Croydon
[1]Stott, H. Hutton Gram. S.
Watson, J.O. *a.al.* Endcliffe Coll., Sheffield
[1]Womersley, G.V. St. Leonards Coll. S.
Wyatt, R.W. *al.* Manor H., Clapham Common

Essex, P.L.G. Collegiate S., Bournemouth
Highton, J.H. Private tuition
Moore, T.G. Collett H., Bournemouth
Pantling, E. High S. for Boys, Croydon

Stone, E.A. Private tuition
Thomas, A.W. *d.* Private tuition
Turner, A. Emwell S., Warminster

[1]Bennion, T.R. Oakes Inst., Walton, Liverpool
Benzie, B.A. Cliftonville Coll., Margate
Blackford, A.J. The College, Clevedon
Blake. W.L. *d.* Barton S., Wisbech
Burford, E.H. Tollington S., Muswell Hill, N.
Curtis, H. Private tuition
Down, H.H. Jersey Modern S. St. Heliers
Hoskins, S.C. Laugharne S., Southsea
Rowland, G.W. Gunnersbury S., Chiswick
Wells, M.D. Margate Comm. S.

Ambler, R. Private tuition
[1]Constantine, H.S. The Palace S., Bewdley
Davis, S. *f.* Salesian S., Battersea
Gedge, H.W. King Edward VI Middle S., Norwich
Gosling, G.L. *al.* Bell's Gram. S., Colcford
Hart, F.A. Oakes Inst., Walton, Liverpool
Hill, A.H. Oakes Inst., Walton, Liverpool
Hulm, C.L. Mercers' School, E.C.
Moore, G.A.R. King Edward VI Middle S., Norwich
Roberts, T.S. *f.* Probus School
Thomas, R.H.E. St. Winifred's S., Torquay
Watson, W.H. Tollington S., Muswell Hill, N.
[1]White, C. St. Mary's Coll., Harlow
Woollett, E.B. Herne Bay College

[1]Barrett, C.A. Ongar Gram. S.
Greenfield, S.F. Private tuition
Kennard, W.D. High S. for Boys, Croydon
[1]Sinclair, R.F. Ryde H. Comm. S., Ripley
Torkington, F. Private tuition

Burfoot, W.M. Bedford H., Folkestone
Cardy, R.J. Clair-Val S., Gorey, Jersey
Douthwaite, A.B.C. S. Martin's Gram. S., Scarborough
Fox, J.P. Private tuition
Francis, C.D. St. John's Coll., Finsbury Pk.
Garnier, T.F. SS. Mary & Peter's S., St. Heliers, Jersey
[1]Maskell, F. Private tuition
Pither, T.W. Comm. S., Stratford-on-Avon
Richards, E. Gram. S., Cowbridge
[1]Smith, C. Oakes Inst., Walton, Liverpool

Clapp, W.M. Hoe Gram. S., Plymouth
Clarke, A.E. Margate Gram. S.
Cutting, W.A. Private tuition
Eason, F. Comm. S., Stratford-on-Avon
Morton, W O. *ch.* Private tuition
[1]Nicolls, A.A. African Training Inst., Colwyn Bay
[1]Potter, A.E. Portland Coll., Chiswick

Adams, W.J. Wallingbrook S., Chulmleigh
Brazier A.D C. Shoreham Gram. S.
[1]Crofton, R.L. Bailey S., Durham
Dowty, H.B. St. Joseph's Coll. S., Totland Bay
[1]Marshall, F. Queenborough Council S.
Millington, H.L. Tollington S., Muswell Hill, N.
[1]Nash, M.F. Private tuition
Thompson, C.F.J. Cliftonville Coll., Margate
Wilks, R.T. Comm. S., Stratford-on-Avon

Baker, L.G. King Edward VI Middle S., Norwich
Holmes, G.C. Private tuition
Mellor, W.L. Seaford College
Parker, J.V. Grosvenor Coll., Carlisle
Tomkin, J.W. Ryde H. Comm. S., Ripley
Watson, G.R. Tynemonth School
Wilson, A.J. Froebel H., Devonport
Wright, S.M. Private tuition

Blackwell, S.F. High S. for Boys, Croydon
Friswell, J.R.T. Shoreham Gram. S.
Fulljames, L.J. Modern S., Gravesend
[1]Houghton, S.B. Oakes Inst., Walton, Liverpool
Kirkham, I. *d.* Hutton Gram. S.
Lowman, R.W. King Edward VI Middle S., Norwich
Nealon, G.R. Private tuition
Sequeira, B.A. *d.* St. John's Coll., Finsbury Pk.
[1]Summers, L.W. Brondesbury College
Williams, M.H. Margate Gram. S.
Woods, L.H. Private tuition

Fletcher, E.A. Belper Gram. S.
McLeod, H. Oakes Inst., Walton, Liverpool
Pearse, D.G. Dulwich College
Richards. J.E.G. Gram. S., Steyning
Skerritt, R.R. Tollington Park College, N.
Snailum, G.F. The College, Clevedon

Bickerton, C.M. Private tuition
Briggs, G.G. Bridlington College
Cavanagh, T. St. Mary's Coll., Middlesbro'
Coward, W.C. Littleton H., Knowle, Bristol
Harrison, G. King Edward VI Middle S., Norwich
Keepin, A.W. Caversham H., Caversham
[1]McAllister, J.A. Private tuition
New, R. St. Mary's Coll., Harlow
Perry, H.T. *ch.* Private tuition
Skipsey, A.C. Private tuition

BOYS, 2ND CLASS, PASS—*Continued.*

Bunn, H.C. Highfield S., Muswell Hill
Edwards, L. Tollington Park College, N.
[1]Edwards, R.C.C. Private tuition
[1]Fanll, H. Gram. S., St. Ives
[1]Gainsford, F. Avenue H., Sevenoaks
[1]Griffiths, A.E. Private tuition
Mount, E. Highfield S., Muswell Hill
Rowland, J. Private tuition
Wood, H. Private tuition

Cook, A.B.
Sir James Smith's Gram. S., Camelford
Delicate, J. *a.* Private tuition
Graves, A.H. *al.*
Finsbury Pk. Coll., Green Lanes, N.
Jordan, J.B. Grosvenor Coll., Carlisle
Mackay, W.H.
Oxenford H., St. Lawrence, Jersey
Malsbury, J. Comm. S., Stratford-on-Avon
Norman, J.M. *f.* Private tuition
Olliver, J. Margate Comm. S.
Perolz, N.M. Brierley Coll., Hornsey
Swann, A.B. Mossley Hall S., Congleton
Thomas, A.R. *sh.* Barry Comm. Acad.
Walker, H.W. *f.*
Arnold H., South Shore, Blackpool

Coleman, J.C. Towcester School
Crampin, E.H. Private tuition
Dexter, L.W. Ryde H. Comm. S., Ripley
[1]Jeffery, J.E. Gram. S., Steyning
[1]Leheup, E.P. Cliftonville Coll., Margate
Malin, A.G. Tollington Park College, N.
Smith, L.B. Private tuition
Tadman, F.
S. Martin's Gram. S., Scarborough
Vinson, A. Private tuition

[1]Adams, R.G.H. Maida Vale School, W.
Badman, C.R. *d.* Modern S., Gravesend
Best, C.W. Froebel H., Devonport
Cowlishaw, L. Bridlington College
Frith, J.G. Comm. S., Stratford-on-Avon
Hatton, W.D. *f.*
Kilmorie, St. Margaret's Bay, Dover
Heyes, R.
Christ Church Hr. Elem. S., Southport
Maskell, R.F. Burlington H., Richmond
Peckover, L.E.C. Charlecote S., Worthing
Pougher, T.E. Bourne Coll., Quinton
Thomas, J. Private tuition
Towlson, G.S. Avenue H., Sevenoaks
Wareham, S.W.
Bradley High S. for Boys, Newton Abbot

[1]Austin, A.L. Private tuition
Emerton, L.J. Seaford College
Littler, L. Private tuition
Lumb, G. Private tuition
Moore, F.S. Wallingbrook S., Chulmleigh
Muirhead, G.C. *d.* Modern S., Gravesend
Smith, A.E.
King Edward VI Middle S., Norwich
Speight, C.
Christ Church Hr. Elem. S., Southport
Stephenson, J.D. Private tuition
Stokes, E.V. Brighton Gram. S.
Tubb, J.B. *d.* Hoe Gram. S., Plymouth

Bamber, C. Hutton Gram. S.
Booth, A.H.
King Edward VI Middle S., Norwich
Buckner, J. St. Mary's Hall, Cardiff
Dennis, T.G. *s.* Croad's S., King's Lynn
Faulder, W.R.H. Grosvenor Coll., Carlisle
Gunn, F.H.W. Newcastle Modern S
Heasman, G.W. Steyne S., Worthing
Hepworth, A.A. Scarborough College
Johnson, N. Southport Modern S.
Knott, H.P. Littleton H., Knowle, Bristol
Lancaster, G.C. *d.* Private tuition
Millward, E. Brunswick H, Maidstone
Saint, W.C. Weymouth Modern S.
Stone, S.K. Modern S., Gravesend
Sykes, G.
Archbishop Holgate's Gram. S., York
Temlett, A., *bk.* Barry Comm. Acad.

Brackenbury, F.
King Edward VI Middle S., Norwich
Fishburn, E.J. Shoreham Gram. S.
Gardom, B.V. North Devon S., Barnstaple
[1]Hills, F.W. St. Leonards Coll S.
Luscombe, L.
Bradley High S. for Boys, Newton Abbot
McConnell, J.H. Shoreham Gram. S.
Milbank, S.A. Private tuition
Pearse, A.J. Kendrick Boys S., Reading
[1]Pengilly, J.A. *d.*
Bradley High S. for Boys, Newton Abbot
Rix, R.A. Shoreham Gram. S.
Robert, V.W. Private tuition
Southwell, C.S.
Clark's Coll., Brixton Hill, S.W.
Watkinson, A.A. Humberstone Foundation S., Old Clee, Gt. Grimsby

Alford, E.H. St. Dunstan's Coll., Margate
Baker, G.B.H.
King Edward VI. Middle S., Norwich
Eason, R. Comm. S., Stratford-on-Avon
Ibbotson, G.S. *bk.*
Clifton Coll., North Shore, Blackpool
Jennings, N. Grosvenor Coll., Carlisle
Moore, H.S.H. Private tuition
Pattisson, R.W.
St. John's Coll., Finsbury Park
Roberts, W.S. Private tuition
Shaw, J.S. Private tuition
Stewart, S.O. Private tuition

Burton, S. Private tuition
Foster, M.L. Wallingbrook S., Chulmleigh
Harrison, J.A.
S. Martin's Gram. S., Scarborough
Isaacs, I. Municipal Secondary S., Cardiff
Lacy Browne, A.
The School, Wellington Rd., Taunton
Lane, H.C.
Licensed Victuallers' S., Lambeth
Markham, S.D.
Chaloner's School, Braunton
Pestana, J.V. Private tuition
Ramsay, G.D. *al.*
Halifax Council Secondary Boys' S.
[1]Thomas, W.E. Private tuition
Tidy, W.H.A. *f.* Gram. S., Ormskirk
[1]Tucker, S.L. The Ferns, Thatcham
Turner, G.F. Scarborough College

Hastings, C.T. Private tuition
Old, R.E. The Palace S., Bewdley

Coward, A.G. *al.ms.*
Mile End H., Portsmouth
Elgey, A. Argyle H., Sunderland
Happs, J.S. Hoe Gram. S., Plymouth
Remmington, A.E. Thornton Heath School
Roberts, R.G.
Oakes Inst., Walton, Liverpool
Rowlands, F.G.J. *al.* Private tuition
Thrupp, A.R. Seaford College
Scruby, E.C. Shoreham Gram. S.

Day, R.E. Brunswick H., Maidstone
Drake, S.E. Gram. S., Devizes
[1]Hoffman, F.J.
Bradley High S. for Boys, Newton Abbot
Nicol, R. Scarborough College
Samwell, F.N.F. Private tuition
Verner, C. Highbury Park S., N.
Whyte, G.N. The Mount Acad., Malton

Brinsden, F. Shoreham Gram. S.
Moore, J.H. Private tuition
Priest, W.G. Richmond Hill School
Rines, N.B. Scarborough College
Sugg, F.R. Oakes Inst., Walton, Liverpool

Akerman, A. Margate Comm. S.
Beckwith, F.W. *ch.*
Lancaster Coll., W. Norwood
Beeson, A.J. Broomy Hill Acad., Hereford
[1]Davis, A.H. Gram. S., Bristol
Evans, L.H.P. St. Leonards Coll. S.
Ewing, A.W.G. Bedford H., Folkestone
[1]Letheren, S.K.
Wallingbrook S., Chulmleigh
Marcussen, M.D. Brondesbury College
Mason, R.P.S. Private tuition
Mayo, S.H. Kendrick Boys' S., Reading
McEwen, G.F. Private tuition
Smith, A. Ryde H. Comm. S., Ripley
Way, A.B. Shoreham Gram. S.

Barnes, B.E. King's S., Bruton
Dickson, A.H. The Middle S., Holsworthy
Pearmund, A.S. Private tuition
Pedley, G.H. Private tuition

Barley, G.J. Hillcroft S., Mortimer
Clegg, J. *al.* Private tuition
Dunn, W.T. Chaloner's S., Braunton
Jackson, J. Leighton Hall S., Carnforth
[1]Kidner, C.H. High S. for Boys, Croydon
Lawrence, N.A. *f.* Bedford H., Folkestone
Littleton, J. Belmore H., Cheltenham
Rudge, A.T. Avenue H., Sevenoaks
Williams, I.B. Peneader Gram. S.

Banks, J.B. Grosvenor Coll., Carlisle
Bilbe, H.A.B. Steyne S., Worthing
Cooke, E.L. Victoria Tutorial Coll.,
Buckingham Palace Rd., S.W.
Cox, G.A. Mile End H., Portsmouth
Denton, A.E. Private tuition
Donaldson, R.T. *al.* Chatsworth S., Carlisle
Duthoit, C.R.
St. Martin's Gram. S., Scarboro'
Farnham, W.E. Brighton Gram. S.
La Trobe, S.B. Skerry's Coll., Bristol
McCabe, S. Commercial S., Maidstone
Roberts, P. *gm.* Private tuition
Smart, G.U. Winchester H, Bristol
Steuart, W.W. Southport Modern S.
Willsher, F.J.
King Edward VI Middle S., Norwich

Bishop, L.E. Private tuition
Davidson, L.F. Private tuition
Gilbert, H. Commercial S., Maidstone
Hart, F.R. Mercers' School, E.C.
Hunt, W.J. Ryde House Comm. S., Ripley
King, F. St. Mary's Coll., Harlow
Nicholson, G. Argyle H., Sunderland
Pool, J.B. St. James's Coll. S., Jersey
Sanders, H.J. Bridge St. Comm. S., Bristol
[1]Watling, J.B. Gram. S., Bristol

Fletcher, J.K.L. White Lodge, Forest Hill
Fuller, C.H. Shoreham Gram. S.
Greenslade, V.E.L.
Bradley High S. for Boys, Newton Abbot
Griffiths, R.G. Private tuition
Keyt, D.R
Oxenford H., St. Lawrence, Jersey
[1]Swinscow, R.T. Private tuition
Webber, L.A. Coll. S., Bridgwater

Berry, H.G.
Buckingham Place Acad., Portsmouth
Dickson, T. Private tuition
Figgins, E.E. Clapham Gram. S.
Urwin, G.F. Private tuition

Brooks, M.C.C. Brentwood High S.
Chappell, W.A. *al.*
Finsbury Pk. Coll., Green Lanes, N.
Foulsham, F.U.
St. Dunstan's Coll., Margate
Laing, A.E.
King Edward VI Middle S., Norwich
Marshall, E. Shoreham Gram. S.
Savage, C.G. Highfield S., Muswell Hill
Symes, H.H.C. Middle Class S., Gosport

Dunn, G.E. Private tuition
Edridge, C.B. Brentwood High S.
Greenwood, R.H. *f.*
Halifax Council Secondary Boys' S.

Falkner, V.M. High S. for Boys, Croydon
Lawrie, D.C. Tutorial Coll., Edinburgh
Moore, C.H. St. Martin's Gram. S., Scarboro'
Shuttleworth, E.R.
Oxenford H., St. Lawrence, Jersey
Stott, T.A.H. Private tuition
Symonds, H.V.B. Shoreham Gram S.

Fitch, J.T. *d.* Private tuition
Gavin, W.T. *f.* Private tuition
Higson, J.K. Oakes Inst., Walton, Liverpool
Jode, S.E. Lancaster Coll., W. Norwood
Jones, J. Private tuition
Mostyn, T. Private tuition
Poley, P.C. Private tuition
Risely, J.W. Thornton Heath S.
Taylor, L.G. High S. for Boys, Croydon
Teagne, S. Christ's College, Blackheath
Yates, A. Bourne Coll., Quinton
Youngson, A. Private tuition

Cantell, R.J.McK. Victoria Coll., Jersey
Durtnell, H.W. Bedford H., Folkestone
Laidman, T. Handel Coll., Southampton
Murphy, J.B. Belper Gram. S.
Ramsbottom, J.K. *al.* Private tuition
Springate, E.C. Clair-Val S., Gorey, Jersey
Tegetmeier, E.B. Clark's Coll., Cricklewood
Watts, F.G. Private tuition

Fox, P.L. Private tuition
Fox, H.V. Private tuition
Gordon, A.S. Fordyce Acad., Portsoy
Green, W.P. Private tuition
Harwood, W.P. Herne H., Margate
Horncastle, J.A. Avenue H., Sevenoaks
Kitcat, G.I. St. Dunstan's Coll., Margate
Rumsey, P.C. Commercial S., Maidstone
Salmon, E.C. Comm. S., Stratford-on-Avon
Wilson, W.S. The Palace S., Bewdley

THIRD CLASS.

Honours Division.

Meunell, C.E. *e.h.g.a.al.d.mu.*
York Minster Choir S., York
Hodgson, H.C. *s.e.h.g.a.al.d.mu.*
York Minster Choir S., York
Pepin, C.Le B. *s.h.f.*
Oxenford H., St. Lawrence, Jersey
Groves, W.E. *s.a.gm.*
Kendrick Boys' S., Reading

Keeble, A.T. *a.al.*
Kendrick Boys' S., Reading
Witting, S.N. *s.e.a.al.f.* Scarboro' Gram. S.
Waring, H.E.A. *e.a.al.d.*
Tollington Park College, N.
Thomas, I.W. *f.ch.* Penketh School
Mills, A.J. *e.a.al.* Tollington Park College, N.

Damsell, G.F. *e.a.al.*
Oakes Inst., Walton, Liverpool
Levy, J.C.B. *al.ge.* Bridlington College
Vinall, S.E. *a.al.f.* Raleigh Coll., Brixton

Bryett, L.H.F. *e.a.f.*
Gunnersbury S., Chiswick
Holden, T. *g.a.al.*
High S., South Shore, Blackpool
Yeo, E.G. *s.a.al.* Tollington Park College, N.

Barette, J.J. *a.f.*
Oxenford H., St. Lawrence, Jersey
Calvert, F. *s.a.al.* Scarborough Gram. S.
Smith, P.L. *e.a.al.gm.* Seaford College
Turner, W.D. *a.al.d.* Bridlington College
Mannering, G. *e.h.al.*
Tollington Park College, N.
Clark, A.P. *g.gm.* Wilmslow Gram. S.

Blampied, A.J. *a.al.f.*
Jersey Modern S., St. Heliers
Fothergill, W.H. *a.al.*
The College, Weston-s.-Mare
Scarle, A.I. *e.g.al.* Collett H., Bournemouth

Banister, J. *e.* Hutton Gram. S.
Bowness, T.V. *s.e.a.al.*
Manchester Warehousemen & Clerks'
Orphan S., Cheadle Hulme
Fromow, A.S. *al.* Gunnersbury S., Chiswick
Griffiths, C. *e.a.gm.*
Southport Commercial Coll.
Ikin, A.E. *e.a.al.l.*
King Edward VI Middle S., Norwich
Lemmon, W. *s.e.a.* Croad's S., King's Lynn
Paterson, A.D. *gm.f.*
Leighton Hall S., Carnforth
Wood, J. *al.sc.* Hutton Gram. S.

Chapman, H.G. *e.a.al.d.*
Southport Modern S.
Gilbert, A. *a.al.* Radnor S., Redhill
Wakeham, W.J. *al.*
Jersey Modern S., St. Heliers

Hastings, A.H. *a.al.f.*
St. John's Coll., Finsbury Pk.
Jelly, H.R. *e.a.al.*
The College, Weston-s.-Mare
Lyle, J.A. *al.* Milton Coll., Bexley Heath
Reily, D.C. *a.gm.d.*
Southport Commercial Coll.
Shorrock, A.G. *a.al.*
Leighton Hall S., Carnforth
Shrewsbury, A.H. *s.e.al.*
Milton Coll., Bexley Heath

d'Authrean, C.J. *al.f.*
Jersey Modern S., St. Heliers
Humphrey, E.J. *s.al.* Barton S., Wisbech
Reed, T. *a.d.* Chaloner's S., Braunton
Roberts, W.A. *a.* Penketh School
Robinson, F.H. *e.a.al.d.*
Modern S., Gravesend
West, F.A. *a.gm.* Shoreham Gram. S.

Barlow E.J.P. *al.ch.* Penketh School
Foden, D. *a.al.* Belper Gram. S.
Mathew, E.A. *e.a.al.f.*
St. John's Coll., Finsbury Pk.
Speed, C.A. *e.al.* Fairlawn S., Leytonstone

Alvargonzalez, Z. *al.f.sp.*
Leighton Hall S., Carnforth
Brown, P. *al.* Southport Commercial Coll.
Dickenson, C. Southport Commercial Coll.
Johnson, H.B. *a.al.gm.* Shoreham Gram. S.
Johnson, R. *e.a.d.*
Christ Church Hr. Elem. S., Southport
Porter, H. *al.f.* Southport Modern S.
Romeril, G.H. *s.e.f.*
Harleston H., St. Lawrence, Jersey
Schofield, A. *a.* Southport Commercial Coll.

Jennings, H.C. *al.f.l.* Radnor S., Redhill
Ransome, E.O. Penketh School
Robb, G.E. *a.al.gm.* Barton S., Wisbech

Chappell, G.L. *f.*
Oxenford H., St. Lawrence, Jersey
Elkington, T.A. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Gray, H.M. *a.al.* Castle Hill S., West Ealing
Lambert, W. *f.* Hutton Gram. S.
Ridsdale, G. *al.d.* Hutton Gram. S.
Waight, D. *a al.* St. Mary's Coll., Harlow

Black, J.A. *e.a.f.* Newcastle Modern S.
Bromley, F.D. *e.g.* Hutton Gram. S.
Dore, C.A. *a.f.* Weymouth Comm. S.
Thorburn, E.C. *a.f.* Newcastle Modern S.
Worth, G.P. *e.a.* Richmond Lodge, Torquay
Yale, J.C. *f.* Westbury H., Southsea

Castleman, F.B. *e.*
Gunnersbury S., Chiswick
Marchant, C.J. *al.*
St. John's Coll., Finsbury Pk.
Robinson, G. *al.* Private tuition

Betts, S. *e.a.* The College, Weston-s.-Mare
Bradfield, A.E. *a.al.*
King Edward VI Middle S., Norwich
Wigg, H. *e.al.f.* St. Mary's Coll., Harlow

Beeson, W.G. *a.*
Broomy Hill Acad., Hereford
Howard, R.C. *al.f.* Laugharne S., Southsea
Tapp, R.T. *al.d.*
The College, Weston-s.-Mare
Taylor, J.K. *a.al.* Scarborough Gram. S.

Collins, A. Seaford College
Fleury, G.J. *al.f.*
Jersey Modern S., St. Heliers
Halse, A. *a.al.d.* South Molton Upper S.
Heap, J.H. *a.* Southport Commercial Coll.
Jacob, D.A. *e.* Croad's S., King's Lynn
Jones, H.S. *a.al.* Tollington Park College, N.
Piller, H. *a.al.* St. Mary's Coll., Harlow
Prior, T. *al.* Mossley Hall S., Congleton
Roskell, J. *al.* Hutton Gram. S.
Stone, H. *a.d.* Towcester School
Tribe, H. *a.al.*
Arundel St. Council S., Portsmouth

Byworth, H.A. *f.*
St. Aubyn's, Woodford Green
Chambers, C. *a.al.d.* Belper Gram. S.
Dallin, F. *a.al.* Froebel H., Devonport
Davey, B.C. *a.*
Oxenford H., St. Lawrence, Jersey
Hammond, T.L. *a.al.gm.*
Argyle H., Sunderland
Mabbott, A. *al.gm.* Scarborough College
Pearlman, L.L. *e.al.*
Southport Commercial Coll.
Ridge, T.F. *a.d.* Chaloner's S., Braunton
Taylor, R.H. *e.* New Coll., Harrogate

Ashplant, W.R. *gm.*
Wallingbrook S., Chulmleigh
Gilman, J. *al.f.ge.* St. Mary's Coll, Harlow
Hamer, R. Kilgrimol S., St. Annes-on-Sea

BOYS, 3RD CLASS, HONS.—*Continued.*

Le Grys, E.W. *d.* King Edward VI Middle S., Norwich
Neighbour, W.H.J. *al.* Milton Coll, Bexley Heath
Sarchet, L.L. *al.* Froebel H., Devonport

Birkinshaw, T. *a.* Derwent H., Bamford
Collard, S.V. Cliftonville Coll., Margate
Green, W.E. Lancaster Coll., W. Norwood
Leadbeater G. *a.al.d.* Scarborough Gram. S.
Luxton, G. *s.h.a.al.d.* South Molton Upper S.
Sargeant, G. *a.d.* Hutton Gram. S.

THIRD CLASS.

Pass Division.

2Bullough, S. *ch.* Southport Modern S.
2Sa'eed, S. High S. for Boys, Croydon

2Edridge, A.H. Brentwood High S.
2Prior, H.R.T. King Edward VI Middle S., Norwich

2Lewis, A.D. Tollington S., Muswell Hill, N.
2Eade, T F. Mercers' School, E.C.
2Barnett, P.J. Winchester H., Bristol
2Clegg, W. Canning St. Council S., Benwell
2Stanhope, H.E.G. *e.* The Greystones S., Scarboro'
2Russell, W.C. Bourne Coll., Quinton
2Swan, H T. Margate Gram. S.
2Nias, A.M. High S. for Boys, Croydon

2Carlyle, L.J. Coll. S., Bridgwater
2Kite, E.W.S. St. John's Coll., Finsbury Pk.
2Collier, J.E. The College, Clevedon

2Dalton, E.J. Commercial Coll., Acton
2Longman, J. St. Olave's Gram. S., S E.

2Coombes, A.C.J. Scarborough College
2Field, W.H.P. Comm. S., Stratford-on-Avon
2Fish, S.H. Ashland High S., Wigan
2Horncastle, H.J. *al.* Avenue H., Sevenoaks

2Burcher, F.D.H. The Palace S., Bewdley
2Stratford, F.J. Ongar Gram. S.

2Bentley, R.A. Weymouth Comm. S.
2Cornelius, H.C J. Bradley High S., Newton Abbot
2Kittle, I.R. Tollington Park College, N.
2Williams, S.G. Richmond Lodge, Torquay

2Findlay, W.D.H. *d.* King Edward VI Middle S., Norwich
2Gowlett, H.S. Cliftonville Coll., Margate
2Labey, T.H. Victoria Coll., Jersey
2Murphy, D. Hutton Gram. S.
2Naylor, T. Southport Modern S.
2Simpson, E.St.L. Lewisham S., Weston-s.-Mare
2Durant, H.J. Castle Hill S., West Ealing

2McKnight, N. Southdown Coll., Willingdon, Eastbourne
2Rush, W. Grosvenor Coll., Carlisle

2Farr, L.C. Winchester H., Bristol
2Rix, A.D. King Edward VI Middle S., Norwich
2Barker, H T. Torbay Coll., Chelston, Torquay

2Hornsby, V. Towcester School
2Rigg, J. Grosvenor Coll., Carlisle

Blundell, G. *al.* High S., South Shore, Blackpool
Cooper, H. Southport Commercial Coll.
Firth, E.H. *a.* Steyne S. Worthing
Joscelyne, L. Mary Street H., Taunton
2Kipps, G.S. Avenue H., Sevenoaks
2Le Leivre, S.St. J. Jersey Modern S., St. Heliers
Longton, E. Penketh School
Roberts, F. *a.al.f.* St. Mary's Coll., Harlow
White, G. *a.d.* St. Mary's Coll., Harlow
Williams, C O. *f.* St. Mary's Coll., Harlow

Baker, E.C. *a.* St. Peter's Choir S., S.W.
Corbyn G.E *a.* King Edward VI Middle S., Norwich
Freeberne, S.L. Southport Commercial Coll.
2Gearing, R R. Shoreham Gram. S.
Harter, K.O. Bedford H., Folkestone
Isaaky, J.Z. *a al.* Mission S. for Hebrew Children, Streatham Common
Levine, C.I. King Edward VI Middle S., Norwich
2Nichols, F.R. Claughton Coll. S., Birkenhead
Rowse, E.A. Newquay College

Bishop, C.W. *d.* Licensed Victuallers' S., Lambeth
Brown, E.H. Tollington Park College, N.
Doman, A. *a.* Littleton H., Knowle, Bristol
Dowding, H.N. *e.a.al.* The College, Weston-s.-Mare
Hornby, G.B. Cliftonville Coll., Margate
2Kelleway M.J. Shoreham Gram. S.
Lye, E G. *a.* Wilsford S., Devizes
Mercer, T.H. Commercial Coll., Acton
2Moss, P.J. Brunswick H., Maidstone
2Mundy, F.A. Oxenford H., St. Lawrence, Jersey
2Robinson, J.G. Abbotsford S., Folkestone

Sabine, H.C. *a.al.* Bradley High S., Newton Abbot
Sloggett, C. *al.* Froebel H., Devonport

Aitkin, D G. *a.al.d.* Modern S., Gravesend
Allen, A.E. *a.* Kendrick Boys' S., Reading
Bachrach, E. *a.f.* Manor H., Clapham Common
2Barnes, J.A. Licensed Victuallers' S, Lambeth
Blackler, W. *al.d.* South Molton Upper S.
Bodenham, N.H. *e.* The College, Weston-s.-Mare
2Cleeton, A.J. West Hill Council S., Hednesford
2Coles, T.J. St. Boniface's Coll., Plymouth
Fawcett, G. *sc.* Hutton Gram. S.
Hartmann, H.J.N.Q. *ge.* Westbury H., E. Southsea
2Horne, J.L. Hutton Gram. S.
2Jackson, H.L. Tollington S., Muswell Hill, N.
Johnstone, T.G.B. Private tuition
2Jones, V.H.C. Oakes Inst., Walton, Liverpool
Kamchai, *a.al.* Private tuition
Lomas, L. *e.* Southport Commercial Coll.
2Mumford, A.L. Weymouth Comm. S.
Poulter, B.J. Hainault H., Ilford
2Seférian, A.M. Gram. S., Chorlton-cum-Hardy
Starbuck, W.A. *al.* St. John's Coll., Finsbury Pk.
Vergette, J. Barton S., Wisbech
Westlake, J. *f.* The School, Wellington Rd., Taunton

Diplock, G.V. *d.* Steyne S., Worthing
Freer, A.E. *a.* St. Martin's Gram. S., Scarboro'
Hammond, E.J. Conway H., Farnborough
Hughes, B.C. Tollington Park College, N
Preston, W. *a.al.* Hutton Gram. S.
Purser, D.M. *a.al.* High S. for Boys, Croydon
Quick, H.G. *d.* Coll. S., Bridgwater
2Sadler, E.A. Hillcroft S., Mortimer
Scarf, C.K. *e.f.d.* Arundel H., Surbiton
2Scott, A. Portland Coll., Chiswick
Shippey, F. St. Martin's Gram. S., Scarboro'
2Taplin, C.L.L. Kendrick Boys' S., Reading
Tapp, J.H. The School, Wellington Rd., Taunton
Tomlinson, R.L *a.* Kilgrimol S., St. Annes-on-Sea
Watkins, C.G. *e.* Croad's S., King's Lynn
Wilks, L.E. Tollington Park College, N.
Young, H.C. *e.al.* Finsbury Pk. Coll., Green Lanes, N.

Alton, J.C.H. *a.al.* Belper Gram. S
Anson, J. *al.* Onsegate S., Selby
Cooper, A.H. *al.* St. Peter's Choir S., S.W.
2Crowe, D.R. *al.* High S., for Boys, Croydon
Gieve, M.B. Gram. S., Stroud Green
2Godwin, A.R. Shoreham Gram. S.
Hind, J. *a.al.* Grosvenor Coll., Carlisle
Lewis, F.E. *a.al.* Highbury Pk. School, N.
Luce, W.H. *f.* Harleston H., St. Lawrence, Jersey
Lyc, W.T. *s.* Wilsford H., Devizes
Mather, W.S. *a.* Kilgrimol S., St. Aunes-on-Sea
2Okey, T K.A.G. Licensed Victuallers' S., Lambeth
Thomas, R.G. *a.* St. Winifred's S., Torquay
Thurgood, H. *al.* St. Mary's Coll., Harlow
West, W. Bedford H., Folkestone
Yeaxlee, R. Modern S., Gravesend

Aubrey, E.E. *a.f.* Taunton School
Counter, P.L. *d.* Private tuition
DeLisle, M.St.J. *al.* Laugharne S., Southsea
Fane, H.S. *e.* Bickerton H., Birkdale, Southport
Gardner, C.R. Swindon High S.
Green, F.F. *gm.* Shoreham Gram. S.
Hall, C.E. *al.* Mount Radford S., Exeter
Mumford, W.H. *e.* St. Martin's Gram. S., Scarboro'
2Norman, W. Grosvenor Coll., Carlisle
Parkin, R. *e.* Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Pegler, H.A. *al.* High S. for Boys, Croydon
Picton, A.T. *s.a.* Bailey S., Durham
Taylor, H. *a.* High S. for Boys, Croydon
Thoresby, F.J. *al.* St. John's Coll., Finsbury Pk.
Tozer, H. *a.* Boys' High S., Wareham
Watson, T.R.O. Licensed Victuallers' S., Lambeth
West, E. Bedford H., Folkestone
2White, G. Newquay College
2Willis, S.A.F. Hoe Gram. S., Plymouth

Adams, H.P. *d.* Commercial Coll., Acton
Bolderston, F.L. *gm.* Wilmslow Gram. S
Bradfield, W.H. Radnor S., Redhill
Coen, C.M. *a.* Keyford Coll., Frome
Cole, F.A. *e.al.* Campbell H., Cotham, Bristol
Cubitt, H.G.F. King Edward VI Middle S., Norwich
2Highwood, C.J. Brunswick H., Maidstone
2Hyde, H.F. St. John's Coll., Finsbury Pk.
McKay, M.C.H. Margate Comm. S.
2Preece, J.S. The Palace S, Bewdley
Prior, S.H. Highfield S., Muswell Hill

Salmon, A.R. Bridlington College
Shutt, W.J. High S., Market Drayton
Snell, L.M. *e.* Wilton H., Exeter
Stephenson, R.B. *a.* Bailey S., Durham
Thouless, A.C. King Edward VI Middle S., Norwich
Walter, H.F. Wilsford H., Devizes
Walton, G.J. *a.al.* The Douglas S., Cheltenham

2Ainsley, F. *d.* Bailey S., Durham
2Badman, H.W. Modern S., Gravesend
Barnard, A.F. *d.* St. John's Coll., Finsbury Pk.
Cunningham, A.P. *a.* Hutton Gram. S.
Fowler H.B. Oxenford, H., St. Lawrence, Jersey
2Golding, W. Courtenay Lodge, Sutton Courtenay
Hough, C.W. St. Aubyn's, Woodford Green
Lacey, G.H. *al.* St. Peter's Choir S., S.W.
2Leveton, S.H. King Edward VI Middle S., Norwich
Maclean, A. *f.* Saham Coll., Watton
Mitchell, D.C. *a.* Waterlooville College
Shaw, T.A. *al.* Newquay College
Shorter, B.J. Modern S., Gravesend
2Snoh Private tuition
Stanesby, J.A. *a.gm.* Seaford College
Timberlake, M. *e.al.* Southdown Coll., Willingdon, Eastbourne
Tomkinson, S.C. Mossley Hall S., Congleton
Topping. A. *al.* Hutton Gram. S.
Waterton, A.E. Modern S., Gravesend

Andrews, H.J.W. *a.* Froebel H., Devonport
Ashworth, P. *a.* Southport Commercial Coll.
Atkinson, R.C. *a.al.* St. Martin's Gram. S., Scarborough
Barnes, J.A. Hutton Gram. S.
Bright, L. *e.* St. Mary's Coll., Harlow
2Cowie, J.D. Cliftonville Coll., Margate
Hammond, H.F. Seaford College
Hand, S. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
2Harrison, T.P. Comm. S., Stratford-on-Avon
Harris, R.G. The Middle S., Holsworthy
2Hornsby, C.J.E. Towcester School
2Iveson, J.A. St. Martin's Gram. S., Scarboro'
2Johnson, R. St. Dunstan's Coll., Margate
Kenyon, E.C. *e.* Bickerton H., Birkdale, Southport
Lanyon, E.B. St. Leonards Coll. S.
Leeder, R *s.* King Edward VI Middle S., Norwich
Macfarlane, J. *al.* St. Mary's Coll., Harlow
Nicholson, E.A. *a.al.* Oakes Inst., Walton, Liverpool
Palfree, J.W.B. *al.* Belper Gram. S.
Powell, C.H. *d.* Belmore H., Cheltenham
2Pugh, L.P. Herne H., Cliftonville, Margate
2Reid, J.W. Maida Vale School, W.
Robson, H.H. Seaford College
Salter, G. Gram. S., Stroud Green
Spencer, G.R. *e.a.* Bickerton H., Birkdale, Southport
Stirling F.H. Castle Hill S., West Ealing
Tasker, E.C. *e.* St. Martin's Gram. S., Scarborough
2Utting, P G. King Edward VI Middle S., Norwich
Walker, J.H. *a.* Shoreham Gram. S.
Welch A J. Westbury H., E. Southsea
Wookey, C.H. *al.* The College, Clevedon

Appleby, R.S. St. Peter's Choir S., S.W.
2Bedford, W. The Palace S., Bewdley
Clayton, W.R. *a.* Bedford H., Folkestone
Dowling, J.H. New Coll., Harrogate
Eckersley, F. *a.* Southport Comm. Coll.
2Featherstone, F.M. Christ's Coll., Blackheath
Fox, G. Belper Gram. S.
Gillinder, J.O. Scarborough College
2Guest, N.S. The Palace S., Bewdley
Harrington, A. St. John's Coll., Southsea
2Land, L.N. Shoreham Gram. S.
2Mähler, A.K. Gram. S., Chorlton-cum-Hardy
Maynard, F.H. Margate Gram. S.
2Morris, H.J. Lytham College
Payne, L.A. Shoreham Gram. S.
Pelham, G.F.L. *a.al.* St. John's Coll., Finsbury Pk.
Puttock, R C. Private tuition
Regan, L.W A. St. Peter's Choir S., S.W.
Robinson, J. *a.* Grosvenor Coll., Carlisle
Schobel, F.C. Belmore H., Cheltenham
Tamblin, R.A.R. Gram. S., Stroud Green
Thomas, G H. *a.* St. Aubyn's, Woodford Green
2Wadge, H. Lewannick Council S., Launceston
2Wells, T. Margate Comm. S.
Willcocks, S.A. St. Dunstan's Coll., Margate
2Winship, A. Bailey S., Durham

Alexander, D. *a.d.* King Edward VI Middle S., Norwich
Buckingham, W. *a.* South Molton Upper S.
2Eckersley, A.I. Gram. S., Sale
Elder, S.H. Mary Street H., Taunton
Greenhalgh, A. Penketh School

Hollinrake, G.S. *f.* Leighton Hall S., Carnforth
Hurn, A.J. *al.* Kendrick Boys S., Reading
Lander, J.M. Tollington Park College, N.
2Lusurier, E. Shoreham Gram. S.
2Milroy, A.A. Oakes Inst., Walton, Liverpool
Ransdale, A.C. *a.al.* Shoreham Gram. S.
2Seel, C.H.B. Private tuition
Snelling, W.W. Melbourne Coll., Anerley
Soutter, M.J. Tollington Park College, N.

Cawood, A.R. *a.* St. Martin's Gram. S., Scarborough
Elsworth, N. *a.* High S., South Shore, Blackpool
2Hall, E.E. Highbury Park S., N.
2Lander, T.C.H. Chadsmoor National S., Cannock
2Pearman, J.C. The Palace S., Bewdley
Peermund, L.F. *a.f.* Licensed Victuallers' S., Lambeth
Randall, A J. *s.* Milton Coll., Bexley Heath
Robinson, F.W. *a.* Kendrick Boys' S., Reading
Robinson, R.L. New Coll., Harrogate
Sein Thoung, Southdown Coll., Willingdon, Eastbourne
Shrimpton, C.H. Seaford College
Shutter, S.F. The College, Clevedon
2Stockley G.M. High S. for Boys, Croydon
Turnbull, R.D. Modern S., Gravesend
Tweedie, S. *a.gm.* Shoreham Gram. S.
2Verrall, S.R. Ongar Gram. S.
Warren, A.J. *al.* Shoreham Gram. S.

Abel, C.R. *a.* Southport Commercial Coll.
Briggs, H.E. *k.* Bridlington College
Chugg, A. Chaloner's S., Braunton
Comber, D.G. *a.* Steyne S., Worthing
Coward, H.A. *e.al gm.* Littleton H., Knowle, Bristol
Field, E.S. High S. for Boys, Croydon
Gill, M. *e.* Kilgrimol S., St. Annes-on-Sea
Graves, W.J. *a.al.* Finsbury Pk. Coll., Green Lanes, N.
Harding, F.L. *a al.* Shoreham Gram. S.
Horton, G.P. *a al.* Brunswick H., Maidstone
2Hoyland, A.E.I. Cheadle National S., Stoke-on-Trent
Key, E.L. *a* Taunton School
2LeGresley, F.H. *f.* Gorey Comm. S., Jersey
2Mariano, G. St. Boniface's Coll., Plymouth
2Melton, G.G. King Edward VI Middle S., Norwich
Purkiss, C.A. Licensed Victuallers' S., Lambeth
2Swinscow, H.E. Private tuition
Tyler, W.V.J. Castle Dene S., Newport, I.W.
Vincent, E.E. *a.d.* King Edward VI Middle S., Norwich
Wilkinson, C.H. The Greystones S., Scarborough
2Yates, A.C. St. Leonards Coll. S.

Armstrong, R. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bartlett, G.J. *a.al.* Froebel H., Devonport
Bryant, H.C. The College, Weston-s.-Mare
Carpenter, F.B. Margate Gram. S.
Danby, R A. *a.al.* Scarborough Gram. S.
Foulkes, D.V. Gram. S., Stroud Green
2Gibbs, A.H.D. The College, Weston-s.-Mare
Hodge, N. Hutton Gram. S.
Horsley, R.G. *a.* Scarborough College
Innocent, E.P. Gunnersbury S., Chiswick
2Knight, V.A.R. Alton H., Blackheath
2Martyn, A.E. Highfield S., Muswell Hill
Morton, A. Grosvenor Coll., Carlisle
Parry, T.D. *al.* Oakes Inst., Walton, Liverpool
Porteous, H R. *al.* Richmond Hill School
Potter, G.H. *al.* Oakes Inst., Walton, Liverpool
Ransdale, G.H. *d.* Shoreham Gram. S.
2Ricketts, T.C.D. Bedford H., Folkestone
Ross, D. *e.* Bickerton H., Birkdale, Southport
Thomas, C.V. Highfield S., Muswell Hill
2Tingley, H.W.G. Shoreham Gram. S.
2Whitehead, A.D. Shoreham Gram. S.

Blundell, T.G. Southport Commercial Coll.
Brown, R. Onsegate S., Selby
Butler, C.O. Tollington Park College, N.
2Caird, D.R. St. Dunstan's Coll., Margate
Ffoulkes, W.H. Tollington Park College, N
Gardner, T. St. Mary's Coll., Harlow
Hammond, W R. Modern S., Gravesend
Hastings, J.O. Wallingbrook S., Chulmleigh
Jones, A.F.R Arnold H., Chester
2Langford, H. *ch.* Lancaster Coll., W. Norwood
Leather, J. *s.* Margate Comm. S.
McConnell, W F. Shoreham Gram. S.
Nelson, B. *a.* St. Mary's Coll., Harlow
2O'Callaghan, E. St. Boniface's Coll., Plymouth
Peters G. Hutton Gram. S.
Reekes, A.T. St. Peter's Choir S., S.W.
Rowlands, C.L. *a.al.* Oakes Inst., Walton, Liverpool
2Schreier, B.C. Shoreham Gram. S.
Stockwell, P. Bridlington College

BOYS, 3RD CLASS, PASS—*Continued.*

Swainston, G.H. The Douglas S., Cheltenham
Unwin, E.H.M. Westbury H., E. Southsea
Watt, G. *c.* Hutton Gram. S.

Beatty, J.L. *a.al.* Belper Gram. S.
Burgess, R.P. King Edward VI Middle S., Norwich
Edgecombe, G.W.P. Collett H., Bournemouth
Hobbs, E. Bedford H., Folkestone
²Humphreys, L. Oakes Inst., Walton, Liverpool
Lees, E. Southport Commercial Coll.
Newman, S.E. *al.gm.* Thornton Heath S., Thornton Heath
²Norris, C.P. Wilton Grove S., Taunton
Palphramand, E. *a.* York Manor S.
Parker, R.C.H. *a.* Clapham Gram. S.
Salter, E.F. Gram. S., Stroud Green
Skinner, C.S. *f.* Manor H., Clapham Common
Spencer, C.W. *al.d.* Highbury Park School, N.
Stubings, C.A. King Edward VI Middle S., Norwich
Veale, F. Hoe Gram. S., Plymouth
²White, M.E. Penzance Comm. S.
Whiting, H.E.G. *a.* Boys' High S., Wareham
Williamson, T. *a al.* St. Mary's Coll., Harlow
Woodell, E.L. *a.* Commercial Coll., Acton

²Bull, T. Private tuition
²Cass, M. Steyne S., Worthing
Clough, E. New Coll., Harrogate
Jones, C.B. Oakes Inst., Walton, Liverpool
Kilner, T.R.B. Gram. S., Steyning
²Lauderdale, W.A. Ryde H. Comm. S., Ripley
Lethern, R.S. Gram. S., Stroud Green
Mackenzie, A.F. Steyne S., Worthing
Martin, W.H. St. John's Coll., Finsbury Pk.
Moore, S.W. Brunswick H., Maidstone
Norbury, B. Gram. S., Chorlton-cum-Hardy
²Patterson, H.G. Brunswick H., Maidstone
²Pitchford, A.R. Shoreham Gram. S.,
²Roberts, J.E. Willow House Coll., Walsall
Steele, D.J. Boys' Coll. S., Aldershot
Stone, S.A. Belper Gram. S.
²Tarr, F.W Ryde H. Comm. S., Ripley
²Taylor, A.S. Barry Comm. Acad.
Thomas, C. Southport Commercial Coll.
Walker, W.G. *a.d.* Cliftonville Coll., Margate
Ward, J.F. *s.* Grove H., Highgate
Waterson, C.M. Altou H., Blackheath
West, H.M. *a.* Kendrick Boys' S., Reading
Woodthorpe, A.S., St. Dunstan's Coll., Margate

²Atkinson, E. Scarborough College
Bradley, G.H. *e.* Bickerton H., Birkdale, Southport
Briggs, C. Towcester School
Bunnell, S.A. Shoreham Gram. S.
Foster, G.T. *f.* Highfield H., Nottingham
Godfrey, J.L. *al.d.* St. John's Coll., Finsbury Park
Grimes, G.H. *a.d.* Tollington Park College, N.
Hallam, E.L.E. *a.* Endcliffe Coll., Sheffield
²Harvey, A. Brunswick H., Maidstone
²Heaton, A.D. Shoreham Gram. S.
Jellings, A.H. St. Martin's Gram. S., Scarboro'
Marett, J.Le S. Oxenford H., St. Lawrence, Jersey
Miles, H.W. Towcester School
Mortimer, P. *e.* Southport Commercial Coll
²Nathan, G.F. Cambridge H., Camden Rd., N.
²Needham, R.A. Shoreham Gram. S.
Paling, G.R. *a.* Hove High S.
²Perry, E.L. Willow House Coll. Walsall
Pittis, W.R. Bedford H., Folkestone
²Richmond, D.E. St. Leonards Coll. S.
Shirt, A. *a.d.* Collett H., Bournemouth
Smith, N. *al.* St. Mary's College, Harlow
Taylor, R.T.J. *e.f.* Richmond Lodge, Torquay
Westacott, W. South Molton Upper S.

²Davies, T.H. Shoreham Gram. S.
²Foot, C.S.P. St. Aubyn's, Woodford Green
²German, J.W. Private tuition
Gibbins, C. Modern S., Gravesend
Halfacre, C.W. *a.* Kendrick Boys' S., Reading
Ireland, M.B. St. Martin's Gram. S., Scarborough
²Leathlean, B. Taunton School
Luck, A. *d.* Southdown Coll., Willingdon, Eastbourne
McAllister, K. *a.al.* Oakes Inst., Walton, Liverpool
Millard, W.H. The College, Clevedon
Pennington, G. The Greystones S., Scarboro'
Russell, S. St. Boniface's Coll., Plymouth
²Saxby, E.G. Avenue H., Sevenoaks
Scott, A.C. King Edward VI Middle S., Norwich
²Searle, A.E.F. The College, Clevedon
Stone, S.V. Wilsford H., Devizes
²Urrutia, D.E. Highfield S., Muswell Hill

²Whitaker, A.T. Comm. S. Stratford-on-Avon
White, C.V. St. Winifred's S., Torquay

Anderson, J. Ongar Gram. S.
²Bacon, H.W. High S. for Boys, Croydon
Butterworth, F. *a.* Clifton Coll., Harrogate
Campbell, G. Scarborough College
Cook, R.J. Brunswick H., Maidstone
Davy, E.R. Penketh School
Defriez, H.J. Southdown Coll., Willingdon, Eastbourne
²Emery, W.H. Taunton School
Gresty, F.C. Penketh School
Instone, E. Boys' Coll. S., Aldershot
Lawrence, C.H. *gm.* Littleton H., Knowle, Bristol
Lewis, W. *al.* St. Mary's Coll., Harlow
Payne, W.W. *d.* King Edward VI Middle S., Norwich
²Platt, W. Academy, Crewe
Shanks, W.R. Margate Comm. S.
²Turpin, C.F. Grosvenor S., Bath
Victor, H. *a.* Shoreham Gram. S.
Walker, E.L. Castle Hill S., West Ealing
Yates, W.C. Manchester Warehousemen & Clerks' Orphan S, Cheadle Hulme
Yeoman, J.H. The Greystones S., Scarboro'

²Beadle, I.A. Brunswick H., Maidstone
Brett, A.R. King Edward VI Middle S., Norwich
Cooke, W.M. *a.* Tollington Park College, N.
Dudfield, H.M.L. *s.* Castle Hill S., West Ealing
Duggleby, W.P. *a.* Scarboro' Gram. S.
Eliasch ff, H. Tollington Park College, N.
Ellett, B.W. *al.* Jersey Modern S., St. Heliers
Freeman, D. *a.* Mission S. for Hebrew Children, Streatham Common
Froud, G.A. *a.* Brunswick H., Maidstone
²Grossart, D.B. Oakes Inst., Walton, Liverpool
Le Feuvre, J.B. *f.* Harleston H., St. Lawrence, Jersey
Leveton, C.D. King Edward VI Middle S., Norwich
Levine, I. *a.* Mission S. for Hebrew Children, Streatham Common
McMillin, H.S. *e.* Bickerton H., Birkdale, Southport
Merigold, B. Hutton Gram. S.
²Newman, S.R. Shenstone C. E School
²Nock, H.S. The Palace S., Bewdley
Park, C.J. *a.al.* Victoria Park S., Manchester
Sargent, E.V. Gram. S., Devizes
Shuttleworth, K.G. Oxenford H., St. Lawrence, Jersey
Tucker, W.C. Bourne Coll., Quinton
Turner, L.J. *a.* King Edward VI Middle S., Norwich
²Weaver, R.A. Rusholme High S. for Boys, Manchester
Zollner, F.A. *a.al.* Gram. S., Sale

Barber, M. New Coll., Harrogate
Benwell, T.F. Ongar Gram. S.
Cristol, H. Margate Jewish Coll.
Farr, W.B. Winchester H., Bristol
²Goldman, L.H. Maida Vale School, W.
Gunn, W.H. Froebel H., Devonport
Hamling, A.G.S. Oxenford H., St. Lawrence, Jersey
Hannaford, H.L. Hoe Gram. S., Plymouth
James, H. St. Leonards Coll. S.
Jessop, H.W. King Edward VI Middle S., Norwich
McLennan, K.D. High S. for Boys, Croydon
²Medd-Hall, R.G. Valentia H., S. Norwood
Renwick, W. St. Leonards Coll. S.
Roberts, W.A. Ongar Gram S.
Runciman, W. *f.* Barton S., Wisbech
Sawyer, G. *al.* St. Mary's Coll., Harlow
Snowball, W.L. Scarborough College
Walker, C.A. *a.* Grosvenor Coll., Carlisle

²Bradbury, G.L.W. Willow House Coll., Walsall
Bramble, G.H.J. Handel Coll, Southampton
²Cole, S.H. Belmore H., Cheltenham
Colling, C.W. St. Leonards Coll. S.
Croker, R.J. *s.a.* Bedford H., Folkestone
Dyer, J.M. *al.* Shoreham Gram. S.
Fry, R.H. *l.* The School, Wellington Rd, Taunton
Harrison, W. York Manor S.
Hersant, M.F. Highbury S. for Boys, Up. Hornsey Rise, N.
Lewis, J.F. Penketh School
Lonsdale, V.O. Winchester H, Bristol
²Midgley, J.H. The College, Weston-s.-Mare
Settle, L.T. High S., South Shore, Blackpool
Smith A. *a.* York H., Reading
Thurston, J.H. *d.* King Edward VI Middle S., Norwich
Topalian, H. *f.* Lytham College
Walton, F. St. Martin's Gram. S., Scarboro'
Webb, E.G. Brunswick H., Maidstone
Whitelaw, A.D. *e.* Clifton Coll, Harrogate
Woodford, W. The Greystones S., Scarboro'

Boardman, K.T. St. Aubyn's, Woodford Green
Bryan, S.J. *f.* Cambridge H., Camden Rd., N.
Buvington, R.H. Walsall Comm. Coll.

Cruttenden, H.A. Gram. S., Steyning
Hargreave, H. *a.* Hutton Gram. S.
Heritage, A. Cliftonville Coll., Margate
Hodgson, J.K. *a.* Scarborough Gram S.
²Hounsom, W.A.F. Kendrick Boys' S., Reading
Johnstone, J.A. *a.* Grosvenor Coll., Carlisle
Murdoch, J.G. *a.al.* Oakes Inst., Walton, Liverpool
Oldroyd, L. *s.* Croad's S., King's Lynn
Olley, W.G. Ryde H. Comm. S., Ripley
Palmer, R.A. *a.al.* Brunswick H., Maidstone
Rice, F.H. Richmond Hill School
Rockilly, J.H. *a.al.* Froebel H., Devonport
Willcocks, C.C. St. Dunstan's Coll., Margate

Allen, C.W. Weymouth Comm. S.
²Blankley, C.H. St. Leonards Coll. S.
Bradfield, W.E. King Edward VI Middle S., Norwich
²Cove, H.E. Ongar Gram. S.
Craig, H.C. Claughton Coll. S., Birkenhead
²Davey, A.R. Wilton Grove S., Taunton
Gorton, R.L. The College, Weston-s.-Mare
Hudson, R.C. Southdown Coll., Willingdon Eastbourne
Jackson, J.E. High S., Market Drayton
Johnson, S.H. Leighton Hall S., Carnforth
King, D.T. *e.* Margate Gram. S.
Labey, T.F. Clair-Val. S., Gorey, Jersey
Patterson, H.F. Brunswick H., Maidstone
Rimmer, P. Southport Modern S.
Rogers, W. *a.al.* Oakes Inst., Walton, Liverpool
Ross, F.S. The College, Clevedon
Taylor, R.C.N. High S. for Boys, Croydon
Taylor, R.T.S. St. Winifred's S., Torquay
Tubby, R.G. Alderman Norman's Endowed S., Norwich
Tun Aung Southdown Coll., Willingdon, Eastbourne
Webb, C. Southdown Coll., Willingdon, Eastbourne

Ardley, A.F. Cambridge H., Norwich
²Bolton, E. Shoreham Gram. S.
Chadwick H. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Cossins, A.L. South Norwood College
Dawson, T. *a.* Finsbury Pk. Coll., Green Lanes, N.
Dodsworth R.N. Belmore H, Cheltenham
Fletcher, C.V. Southampton Boys' Coll. & High S.
Hide, R. Gram. S., Steyning
Hirst, G H.C. Scarborough College
Michell, B. St. Boniface's Coll., Plymouth
²Morton, F. Gram. S., Sale
Nicholas, D. *a.* Oxford H., Junction Rd., N.
Palmer, G.A. Croad's S., King's Lynn
Pickering, R. Sabam Coll., Watton
Powell, W. South Molton Upper S.
Simpson, T. Mossley Hall S., Congleton
Taylor, W.C. *a.d.* Brentwood High S.
²Thomas, W.D. Taunton School
Thomson, W.C. *a.* Ryde H Comm. S., Ripley
²White, A.J. St. Dunstan's Coll., Margate
Wolfe, C.F. St. John's Coll., Finsbury Pk.
²Woolcock, A.R. Alleyn H., Hove

Brend, P. *d.* Keyford Coll., Frome
Carmichael, A.M. King Edward VI Middle S., Norwich
Carr, H. Ousegate S., Selby
Crisp, E.A. Croad's S., King's Lynn
Elworthy, F. South Molton Upper S.
Hammond, L.D. Scarborough College
Heath, H.F. Gram S., Sale
Humphries, S.W. Margate Comm. S
Langford, E.J. *s.* Croad's S., King's Lynn
Lomax, J.F. Kilgrimol S., St. Annes-on-Sea
Miles, J.E. The College, Clevedon
Mumford, E.W. Weymouth Comm. S.
Oliver, E.H. *d.* The Middle S., Holsworthy
Pinot de Moira, M.G.J.P.P. *a.* Tollington Park College, N.
Raincock, C.W. Shoreham Gram. S.
²Severs, G.A. Manor H., Clapham Common
Skeet, C.W. St. John's Coll, Finsbury Pk.
Thomas, D.H.G. Taunton School
Vaganoff, V.V. Shoreham Gram. S.
Watson, G.W. Willow House Coll., Walsall
Wilcocks, E.E. St. Winifred's S., Torquay

Appleton, A. Penketh School
Bartlett, H.G. *a.f.* Jersey Modern S., St. Heliers
²Beer, R.G. Cliftonville Coll., Margate
Bennett, W. Oakes Inst., Walton, Liverpool
Elliott, C.A. Boys' Coll. S., Aldershot
Evans, J.R. Gram. S., Chorlton-cum-Hardy
Forster, J.R. Bailey S., Durham
Harris, G.E. *e.* Hutton Gram. S.
Lister, R.W. Ryde H. Comm. S., Ripley
Minshall, F.B. High S., Market Drayton
Oxburgh, E. *a.* Oakes Inst., Walton, Liverpool
Portnow, J. *a.* Mission S. for Hebrew Children, Streatham Common
Robinson, W.R. Tollington Park College, N.
Shepherd, H.L. The College, Clevedon
Slade, A.J. Steyne S., Worthing
²Stansby, J.W. Ongar Gram. S.
Thomas, G.A. Belmore H., Cheltenham
Trenowath, W.P. Croad's S., King's Lynn
Wall, W.L.A. *l.* Avenue H., Sevenoaks

Watkins, E. Steyne S., Worthing
Wearing, G.L. *a.al.* St. Martin's, Gram. S., Scarboro'

Allan, G. Oakes Inst., Walton, Liverpool
Bardrick, H.G. Shoreham Gram. S.
²Birkett, R.A. Leighton Hall S., Carnforth
Danby, F.G. *a.* Scarborough Gram. S.
Dondo, P. Mission S. for Hebrew Children, Streatham Common
Firkin, R.E. St. Leonards Coll. S.
Godsill, S. Southdown Coll., Willingdon, Eastbourne
Goldfish, A. Mission S. for Hebrew Children, Streatham Common
Hobourn, P.L. Towcester School
Knibbs A. Hilcroft S., Mortimer
Lee, W.H. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
²Lorenzen, A.E. Gram. S., East Finchley
Lyons, C.F. Maida Vale School, W.
Marks, B.A. The College, Clevedon
Pick, N.A. *a.* St. Germans Endowed S.
Price, C. Hoylake College
Ridley, C.B. Arundel H., Surbiton
Robbins, A.J. Brentwood High S.
Thomas, F. Littleton H., Knowle, Bristol
Walker, G.H. *s.* Mossley Hall S., Congleton

Barnes, H.B. Private tuition
Brangwin, C.R.A. *a.* Gram S., Stroud Green
Brockington, C.C. The School, Wellington, Taunton
Flack, L.J. St. John's Coll., Finsbury Pk.
Gray, A W. Castle Hill S., West Ealing
Hardwick, E.H. Boys' Coll. S., Aldershot
Hicks, R. Swindon High S.
Hodges, H.S. Southampton Boys' Coll. & High S.
Kelly, J.J. *d.* Academy, Crewe
Levine, V. King Edward VI Middle S., Norwich
Mather, V.A. Clarence H., Reading
Mercer, C.E. *a.al.* Oakes Inst., Walton, Liverpool
²Meyer, G.C. Steyne S., Worthing
Nicolson, B.D. Gram. S., Stroud Green
Pearson, H.A. York Manor S.
Perkin, F.R. Wallingbrook S., Chulmleigh
²Potter, A.B. Portland Coll., Chiswick
Rawnsley, G. Clifton Coll., Harrogate
Rookledge, F.S. Margate Gram. S.
Rowell, A.M. Croad's S., King's Lynn
Rush, J. Grosvenor Coll., Carlisle
Stephens, G.S. Highbury Park S., N.
Watt, J.B. *al.* Oakes Inst., Walton, Liverpool

Adams, F. Shoreham Gram. S.
Brooks, L.C. *f.l.* Grosvenor S., West Hampstead
Dannenberg, I. Christ's Church Hr. Elem. S., Southport
Dixon, F.R.E. Scarborough College
²Farley, B. Brunswick H., Maidstone
²Flanagan, G.A. Camden H., Camden Rd., N.
Gibson, J H. Leighton Hall S., Carnforth
Gilbert, R.S. Commercial S., Maidstone
Gledhill, A.C. *al.* Ansdell S., Lytham
Hazell, E.W. St. John's Coll., Finsbury Pk.
²Howse, F.W. Margate Gram. S.
Hurst, A. Holt H., Cheshunt
Lawrence, V.A Ongar Gram. S.
Loynes, J. King Edward VI Middle S., Norwich
²Manger, C.A.J. Lancaster Coll., W. Norwood
Mawby, L.S. *a.* Priory Coll., Hornsey
Myers, A. Mission S. for Hebrew Children, Streatham Common
Pimlott, J.K. Penketh School
Reid, S.J. Maida Vale School, W.
Rossitter, T.G. Bourne Coll., Quinton
²Stanners, E.C. The Palace S., Bewdley
Taylor, J. Hutton Gram. S.
²Thomas, T.F. Private tuition

Alliss, J.S. Gram. S., Steyning
Baal, A.T. West End S., Jersey
Bewers, S.F. Modern S., Gravesend
Cullingford, H. King Edward VI Middle S., Norwich
Gibbs H.J. Ongar Gram. S.
Jewell, F. *a.* Newquay College
Kindell, R.H. Highfield S., Muswell Hill
McCall, A Christ's Coll., Blackheath
Monrant, P. Jersey Modern S., St. Heliers
Norman, R.L. Oxenford H., St. Lawrence, Jersey
Poole, A V. Shoreham Gram. S.
Robinson J H. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
²Warnicker, L.B. Taunton School
West, F.W.A. Seaford College
Willcox, J.T.A. *a.* Oxenford H., St. Lawrence, Jersey
Youngs, T.R.W. King Edward VI Middle S., Norwich

Ainsworth, A. Grosvenor Coll., Carlisle
Barbey, W.R. Licensed Victuallers' S., Lambeth
Barnacle, R.C. *al.* Hermitage S., Grimsargh
Bocking, A.H. Ongar Gram. S.
Chandler, J.F.W. The Ferns, Thatcham
Denny, A.L. Bedford H., Folkestone
Dingley, A.C. Taunton School

BOYS, 3RD CLASS, PASS—*Continued.*

Glover, G. Bracknell College
Goodall, F. W. Bracknell College
Gubbin, R. F. Manor H., Clapham Common
Haslam, T. South Norwood College
Hogg, H. F. *a.* Bedford H., Folkestone
Holme, E. W. *al.* Oakes Inst., Walton, Liverpool
²Hoskins, G. Hutton Gram. S.
Howe, C. B. Bradley High S., Newton Abbot
Lindsay, D. M. Manor H., Clapham Common
Little, T. Bickerton H., Birkdale, Southport
Luscombe, H. P. *d.* Richmond Hill School
Ranger, B. S. Cliftonville Coll., Margate
Ridge, G. A. Bradleigh High S., Newton Abbot
Smith, J. S. Modern S., Gravesend
Taylor, A. L. Manor H., Clapham Common
Walsh, G. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Yard, H. F. The College, Clevedon

Baynes, N. T. Steyne S., Worthing
Clark, E. The Greystones S., Scarboro'
Figgins, H. H. Clapham Gram. S.
²Findlay, C. O. Taunton School
Gasking, E. B. Oakes Inst., Walton, Liverpool
Goslin g, E. Modern S., Gravesend
Grundy, R. E. Hutton Gram. S.
Guy, E. H. St. Joseph's Coll. S., Totland Bay
Hunt, J. Hutton Gram. S.
King, W. F. Ongar Gram. S.
Leffler, C. J. Westbourne Rd. Prep. S., Sheffield
Legge, W. J. Fro-bel H., Devonport
Lindsay, J. M. Hoe Gram. S., Plymouth
Lowe, R. I. Kilgrimol S., St. Annes-on-Sea
Lucas, R. Arundel H., Surbiton
Marshall, W. Wilmslow Gram. S.
Milner, E. R. Hutton Gram. S.
Pepworth, A. Huttou Gram. S.
Rhodes, F. G. Bedford H., Folkestone
Sheppard, G. Taunton School
Viullet, S. Tollington Park College, N.
Wareham, D. M. *d.* Bradley High S., Newton Abbot

Acott, A. G. Moderu S., Gravesend
Bollaud, D. Comm. S., Stratford-on-Avon
Burchatt, J. A. P. St. Aubyn's, Woodford Green
Chaston, J. Newcastle Modern S.
Dickinson, A. *e.* Endcliffe Coll., Sheffield
Elkin, R. *a.* Mission S. for Hebrew Children, Streatham Common
Greeuhough, J. H. Lytham College
Gregory, N. H. Leighton Hall S., Carnforth
Hards, H. J. Oxford H., Junction Rd., N.
Marsh, C. H. St. Dunstan's Coll., Margate
Pocoek, H. Christ's Coll., Blackheath
Pogose, I. R. Arlington Park Coll., Chiswick
Poulton, W. E. Bourne Coll., Quinton
Rhodes, W. P. Scarborough College
Swan, G. A. Margate Gram. S.
Waldron, B. St. Boniface's Coll., Plymouth
Williams, D. J. S. Gram. S., Devizes
²Worthington, H. B. High S. for Boys, Croydon

Bale, A. R. Radnor S., Redhill
Bellew, A. G. *d.* The College, Clevedon
Elmy, W. H. Licensed Victuallers' S., Lambeth
Grist, F. J. Modern S., Gravesend
Jacker, A. H. Richmond Hill School
Jefferies, L. S. Kingsholme S., Weston-s.-Mare
Johns, A. S. B. Taunton School
Sewell, A. Grosvenor Coll., Carlisle
Waterhouse, A. H. St. Joseph's Coll. S., Totland Bay
Woodford, F. The Greystones S., Scarboro'

Bowden, C. H. St. Winifred's S., Torquay
Champion, N. L. Lancaster Coll., W. Norwood
Clements, H. T. The College, Rock Ferry
Clench, L. G. Bradley High S., Newton Abbot
Coley, S. C. Hoe Gram. S., Plymouth
Davies, R. L. Castle Hill S., West Ealing
Flower, E. G. The College, Clevedon
Heritage, F. Cliftonville Coll., Margate
Hitchcock, F. T. Ryde H. Comm. S., Ripley
Kortright, R. Raleigh Coll., Brixton
Ling, W. B. King Edward VI Middle S., Norwich
Major, H. Oakes Inst., Walton, Liverpool
Plevin, H. W. Manchester Warehousemen & Clerks' Orphau S., Cheadle Hulme
Renwick, W. T. Coll. S., Bridgwater
Reycroft, H. V. Boys' Coll. S., Aldershot
Schumann, C. L. G. J. Oxford H., Junction Rd., N.
Seear, D. F. Gram. S., Stroud Green
Squire, A. Hoe Gram. S., Plymouth
Steedman, E. C. Saham Coll., Watton
Taylor, G. S. Ongar Gram. S.
Wadkinson, R. A. Commercial S., Maidstone
²Wakefield, W. G. Lancaster Coll., W. Norwood
Wyatt, C. H. Manor H., Clapham Common

Barnett, G. B. Maida Vale School, W.
Clarke, C. O. *a.* Homeleigh, Downham Market
Clarke, S. Penketh School
Cooke, E. D. Barton S., Wisbech
Hobbs, G. N. Mary Street H., Taunton
Holden, W. B. Ryde H. Comm. S., Ripley
Jenkins, L. M. Radnor S., Redhill
Johnson, A. York Manor S.
Kent, H. T. Ion H., East Molesey
Mack, W. T. *d.* King Edward VI Middle S., Norwich
²Morrell, C. E. The Palace S., Bewdley
Morris, A. F. St. Leonards Coll. S
Owen, J. R. Oakes Inst., Walton, Liverpool
Smith, A. B. Clapham Gram. S.
Type, S. C. S. The College, Clevedon
²Waight, L. Mile End H., Portsmouth
Webster, L. H. *al.* Oakes Inst., Walton, Liverpool
Young, S. C. F. Modern S., Gravesend

Black, B. W. Bell's Gram. S., Coleford
Bromley, F. Private tuition
Hosken, N. Newquay College
Hubble, D. H. *al.* Tollington Park College, N.
Keller, R. K. Egham High S.
Lubbock, L. F. Laugharne S., Southsea
²MacFarlane, R. M. Manor H., Clapham Common
²Myles, C. V. Broomy Hill Academy, Hereford
Sandford, D. C. King Edward VI Middle S., Norwich
Shepherd, G. *s.* Oxenford H., St. Lawrence, Jersey
Starr, H. C. King Edward VI Middle S., Norwich
²Taylor, A. J. The Palace S., Bewdley

Avery, A. F. Commercial S., Maidstone
Benwell, W. J. Ongar Gram. S.
Boyce, G. Homeleigh, Downham Market
Carr, E. *d.* Ousegate S., Selby
Chappell, E. F. *a.* Finsbury Pk. Coll., Green Lanes, N.
Chudley, E. M. Mount Radford S., Exeter
Gale, J. H. G. Winchester H., Bristol
Gill, A. Gram. S., Chorlton-cum-Hardy
Graham, A. C. Ion H., East Molesey
Hales, P. S. Steyne S., Worthiug
Hatcher, L. The School, Wellington Rd., Taunton
Parsons, G. Bourne Coll., Quinton
Speneer, G. C. Belper Gram. S.
Taylor, T. Hutton Gram. S.
Uzzell, F. C. The Douglas S., Cheltenham

Bolton, R. *a.* Shoreham Gram. S.
Coheu, A. Tollington Park College, N.
Edwards, E. C. Clair-Val S., Gorey, Jersey
Harrison, H. B. Hoylake College
Hollands, F. M. Bruuswick H., Maidstone
Hosken, C. Newquay College
Kent, C. Shoreham Gram. S.
Knight, V. Comm. S., Stratford-on-Avon
²Ollis, L. C. J. Mile End H., Portsmouth
Pullom, R. S. *a.* The Douglas S., Cheltenham
Reeves, H. G. Taunton School
Smith, R. H. Mannamead S., Walmer H., Mannamead
Stott, F. Brunswick H., Maidstone
Trevorrow, J. P. Newquay College
Wilkinson, E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme

Akidy, K. B. Private tuition
Appleyard, A. Scarborough Gram. S.
Butler, L. H. Clarence H., Reading
Chaston, H. Newcastle Modern S.
Coombes, L. F. B. Scarborough College
Corbidge, A. C. St. John's Coll., Finsbury Pk.
Holmes, A. South Molton Upper S.
Morris, I. V. Taunton School
Oldham, F. E. *s.* Highbury S. for Boys, Up Hornsey Rise, N.
Parsons, W. R. St. Winifred's S., Torquay
Smith, H. R. Handel Coll., Southampton
Steward, R. F. High S. for Boys, Croydon
Wright, W. S. St. Winifred's S., Torquay

Abraham, H. R. Handel Coll., Southampton
²Arnison, C. H. Belmore H., Cheltenham
Ballard, E. S. Ryde H. Comm. S., Ripley
Bamford, R. S. Modern S., Gravesend
Bath, S. R. Newquay College
Clifford, G. M. Margate Gram. S.
Davys, V. J. Avenue H., Sevenoaks
Freeman, G. York H., Reading
Ivens, A. S. Steyne S., Worthing
King, L. Ongar Gram. S.
Miles, H. Lancaster Coll., W. Norwood
Reed, K. St. John's Coll., Brixton
²Stansby, J. M. Ongar Gram. S.
Sworder, J. R. Towcester School
Theobald, H. E. *a.* Taunton School

Ashby, C. D. Gram. S., Devizes
Baxter, J. H. Oakes Inst., Walton, Liverpool
Coppin, R. A. Margate Comm. S.
Corke, D. E. Avenue H., Sevenoaks
Davison, A. Littleton H., Knowle, Bristol
Gibson, S. Mossley Hall S., Congleton
Hostler, A. C. Campbell H., Cotham, Bristol
Reay, S. B. Grosvenor S., Bath
²Robinson, G. The Mount Acad., Malton

Barwell, E. Gram. S., East Finchley
Crofts, H. P. Willow House Coll., Walsall
Dance, L. H. Tollington Park College, N.
Dean, S. Bickerton H., Birkdale, Southport
Lees, H. The College, Rock Ferry
Seyfang, R. E. Brentwood High S.
Slade, S. H. Winchester H., Bristol
²Taylor, E. C. Brunswick H., Maidstone
Taylor, L. Gram. S., Chorlton-cum-Hardy
Wallace, I. R. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Watson, D. Brentwood High S.

Austin, A. St. Winifred's S., Torquay
Biziou, E. A. G. *f.* Farnham Gram. S.
Blake, H. C. Hillcroft S., Mortimer
Clarke, T. *e.* Westcliff S., Southport
Clayton, D. Hutton Gram. S.
Fletcher, J. L. Malvern H., Folkestone
Hunt, R. C. Portland Coll., Chiswick
Rees, D. I. Taunton School
Sex, A. E. Ryde H. Comm. S., Ripley
Willmott, H. J. C. Lancaster Coll., W. Norwood
Woodthorpe, D. F. *d.* St. Dunstan's Coll., Margate

Aung Tun Private tuition
Boughton, J. Froebel H., Devonport
Bullock, T. W. I. Christ's Coll., Blackheath
²Cope, R. W. The Palace S., Bewdley
Giles, R. E. C. Reagill H., Bath
Lloyd, D. M. A. High S. for Boys, Croydon
Marshall, R. E. Bracknell College
Maxted, A. H. Brunswick H, Maidstone
Nixon, R. Grosvenor Coll., Carlisle
²Rowbottom, H. A. King Edward VI Middle S., Norwich
Tickle, R. G. Saham Coll., Watton
Williams, F. P. Bourne Coll., Quinton
Wilson, J. Gro-venor Coll., Carlisle

Adamson, C. P. Newquay College
Dymond, J. J. Hoe Gram. S., Plymouth
Featherstone, B. St. Boniface's Coll., Plymouth
Finn, R. W. Malvern H., Folkestone
Gibson, J. M. Saham Coll., Watton
Harwood, G. Comm. S., Stratford-on-Avon
Horton, S. H. Grosvenor S., Bath
Reeves, B. Brunswick H., Maidstone
Sherwood, F. S. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Sutton, E. J. Oakes Inst., Walton, Liverpool
Swindlehurst, R. Kilgrimol S., St. Annes-on-Sea
²Turner, A. E G. Shoreham Gram. S.

Balch, F. A. Swindon High S.
Box, R. Modern S., Gravesend
Coe, S. Croad's S., King's Lynn
Coley, C. F. Hoe Gram. S., Plymouth
Harris, B. St. Boniface's Coll., Plymouth
Jukes, F. Taunton School
Langrish, T. H. Ryde H. Comm. S., Ripley
Long, A. J. Ongar Gram. S.
Phelps, G. Swindon High S.
²Smith, S. H. Steyne S., Worthing
Stanton, E G. M. Oakes Inst., Walton, Liverpool
Whitney, J. R. Cambridge H., Camden Rd., N.

CLASS LIST — GIRLS.

(*For list of abbreviations, see page* 84.)

FIRST CLASS [or SENIOR].

Honours Division.

Gieve, G. M. *s.e.g.ms.d.* Crouch End High S., Hornsey

FIRST CLASS [or SENIOR].

Pass Division.

Aivasides, I. *g.f.d.* English High S., Constantinople
Bevan, C. A. *s.e.mu.* Oakover Girls' S., Burnham
Harris, E. G. *e.mu.* Harley H., Hereford
Adams, L. C. *s.e.mu.* Oakover Girls' S., Burnham
Latham, R. *s.e.* Holmlea Girls' S., Ongar
Watt, E. I. Crouch End High S., Hornsey
Smith D. O. *e.* Harley H., Hereford
Franks, G. B. *s.mu.* Conway H., Farnborough
Parsons, M. M. A. *s.* The Middle S., Holsworthy
Roberts, M. E. *do.* Pengwern Coll., Cheltenham
Sharp, P. M. *s.* St. Maur Coll., Chepstow
Coulson, E. T. *s.do.* Westoe High S. for Girls, S. Shields
Sharp, E. N. *s.mu.* St. Maur Coll., Chepstow
Smallpeice, A. P. *d.do.* Newcastle H., Lewes
Crossland, E. *e.d.* Leeds Girls' High S.
Franklin, C. *mu.* Norton Lodge, Small Heath, Birmingham
Freudenhammer, M. M. A. *f.sp.* Private tuition
Boldero, G. I. *s.* Gartlet, Watford
Hanks, G. *s.do.* Beighton H., Sheffield
Saxton, E. M. *d.mu.* Private tuition
Clark, O. E. F. Private tuition
Fisher, E. *ph.do.* Palmer's Green High S.
Curtis, M. F. Girls' Gram. S., Levenshulme
Knight, K. M. *d.* London Coll., Goodmayes
Pouris, T. *f.* English High S., Constantinople

Chambers, C. Nampton Gram. S., Glasbury-on-Wye
Hill, M. R. *s.* Private tuition
Hunt, I. Private tuition
Langford, A. B. E. A. *do.* Roanoke Coll. S., Palmer's Green
Norris, A. M. Girls' Gram. S., Levenshulme
Wiltshire, O. G. St. Hilda's, Beltinge, Herne Bay
Milward, D. E. E. Stafford H., Clapham Common
Levrero, M. L. *sp mu.* Loreto Conv., St. Francis Xavier's, Gibraltar
Looker, J. G. *s.do.* Gartlet, Watford
Powell, M. D. *s.* Lulworth H., Caerleon, Mon.
Silverman, R. *s.do.* Private tuition
Hart, W. Bell's Gram. S., Coleford
Howie, M. Leeds Girls' High S.

SECOND CLASS [or JUNIOR].

Honours Division.

Biggs, C. M *s.a.al.d.* Crouch End High S., Horusey
Perry, E. L *al.d.* Weymouth P.-T. Centre
Jeram, K. F. *s.h.al.f.mu.* Manor H., Havant
Bishop, M. R. *e.f.d.* Weymouth P.-T. Centre
Harris, H. S. *f.d.* Weymouth P.-T. Centre
Clarke, K. A. *al.f.* Wilmslow Gram. S.
Powell, G. E. *s.f.mu.* Harley H., Hereford
Moggeridge, M. R. *s.h.* Weymouth P.-T. Centre

GIRLS, 2ND CLASS, HONS.—*Continued.*

Golby, R.L. Crouch End High S., Hornsey
O'Neill, M. *s.e.al.f.* St. Mary's Conv., The Newlands, Middlesbro'
Coote, D.A. *s.mu.* Glenarm Coll., Ilford
Marshall, E. *a.* St Mary's Conv., The Newlands, Middlesbro'
Marshall, K. *f.ch.d.* Portsmouth Girls' Secondary S., Southsea
Farrow, A.M. *do.* Crouch End High S., Hornsey
Adkins, W.M. Girls' Tech. S., Wimbledon
Bird, F.C. *d.* Weymouth P.-T. Centre
Jarvis, D.M. *s.f.* Whitgift H., Croydon
Anthony, B.M. *f.* Towcester School
Crossley, A. Weymouth P.-T. Centre
Early, A.L. Weymouth P.-T. Centre
Forbes, D.W.M. *mu.* Shenley H., Highgate
Webb, F.L. *s.mu.* Oakover Girls' S., Burnham
Spender, C.C. Harley H., Hereford
Slarke, V.E. *s.* Towcester School
Brooker, V.A. *mu.* Oakover Girls' S., Burnham
Walker, I. *mu.* Greycourt, Southport

SECOND CLASS [or JUNIOR].

Pass Division.

[1]Pitcher, G. Gninevere S., Torquay
Atkinson, M.S. *f.mu.* Greycourt, Southport
Pruen, K.E. *mu.* Oakover Girls' S., Burnham
Burdon, C.H. *d.* Crouch End High S., Hornsey
Glanvile, M. *s.mu.* Oakover Girls' S., Burnham
Pape, H.S. *mu.* Rock Hill S., Chulmleigh
Smith, W.H. Harley H., Hereford
Thomas, A.H. *do.* Oxford H., St. Leonards-on-Sea
[1]Hughes, M. Private tuition
Burnard, F. Weymouth P.-T. Centre
[1]Cabedo, Mercedes *sp.* Loreto Conv., St. Francis Xavier's, Gibraltar
Conway, E.M. Crouch End High S., Hornsey
[1]Davies, M. *s.mu.* St. Maur Coll., Chepstow
Shearer, J.C. Wellington Coll., Hastings
King, H.E. Thorntonville Girls' S., Thornton Heath
Sheppard, A. Weymouth P.-T. Centre
Storey, F.C. Weymouth P.-T. Centre
Trevett, M.E. Portsmouth Girls' Secondary S., Southsea
Ussher, M.P. Private tuition
[1]Hale, M.A. Palmer's Green High S.
[1]Hawes, A. Private tuition
[1]Booth, E. Private tuition
Brown, F.A. *do.* The Limes, Buckhurst Hill
Fisher, V.G. Weymouth P.-T. Centre
[1]Manger, P.R. Elvaston, Dulwich
[1]Ponsford, M.R. *s.* Private tuition
Ball, C.W. *s.* Clark's College, High S., Tufnell Pk., N.
Pickthorn, G.M. Hill Croft S., Bentham
[1]Taylor, M. *s.* Private tuition
[1]Clarke, M.W St. Margaret's, Cardiff
Harrison, F.I. Academy, Crewe
[1]Bamlett, E.M. Private tuition
Barton, M. *s.* Castle Dene S., Newport, I. W.
Cabedo, Mary *sp.* Loreto Conv., St. Francis Xavier's, Gibraltar
Devenish, S. Portsmouth Girls' Secondary S., Southsea
Simons, E.M. Girls' Tech. S., Wimbledon
Wright, M.A. *f.* Clark's College High S., Tufnell Pk., N.
Clifford, D. Kenilworth, Seabrook, Folkestone
[1]Tickle, M.L. Private tuition
Wheway, B.A. St. Joseph's Coll. S., Totland Bay
[1]Owen Williams, M. Private tuition
Sutcliffe, R. *mu.* Pencraig S., Newport, Mon.
Clements, A. *al.* St. Mary's Conv., The Newlands, Middlesbro'
Irwin, R.D. *s.* Aintree High S., Liverpool
Lomas-Smith, W.M *mu.* Bourne H., Eastbourne
Serafoglou, L. *f.* English High S., Constantinople
Babb, M.L. Weymouth P.-T. Centre
Burchell, E A. *ch.* Portsmouth Girls' Secondary S., Southsea
Cooke, A.E. Girls' Gram. S., Levenshulme
Dyke, A.O. Girls' Tech. S., Wimbledon
Kett, W.E. Weymouth P.-T. Centre
[1]Moss, C.E. Colne Valley S., Rickmansworth
Pitten, N. *mu.* Lulworth H., Caerleon, Mon.
[1]Knight, G.A. Pontywaun Inter. S., Risca, Mon.
Rayner, M. *f.* Thoresby High S, Leeds
Andrew, M. *d.* Loreto Conv., St. Francis Xavier's, Gibraltar
[1]Brown, E. Westoe High S. for Girls, S. Shields
Buckler, G.M. Portsmouth Girls' Secondary S., Southsea
[1]Ready, J.C.A. *s.* Private tuition
[1]Williams, A.T. *s.* Academy, Crewe
Townsend, A. Central Hr. Standard S., Carnock
Wallis, K.M. *s.* Alexandra Coll., Shirley
Bowler, M.E. St. Mary's Conv., The Newlands, Middlesbrough
[1]Carr, L.V. Private tuition
Digby, V.R. Portsmouth Girls' Secondary S., Southsea
Hancock, I.B. Tintern H., Forest Hill
Archer, E.M. Carlyle Coll., Clapham Common
Hill, D.M. *d.* Academy, Crewe
Ramsbottom, P.H. Hill Croft S., Bentham
[1]Clark, K.M. Roanoke Coll. S., Palmer's Green
Clough, A.L. Hill Croft S., Bentham
[1]Dodson, M.G. *d.* 109, Uxbridge Rd., Ealing
[1]Henchy, E.M. St. Dominic's High S., Stoke-on-Trent
[1]Fenn, F.G. Girls' Secondary S., Peterborough
Yates, A.G. *mu.* Drayton Council S., West Ealing
Betts, P.M. Stapleton Hall S., Stroud Green
Joyner, B.P. *mu.* Duncan H., Clevedon
[1]Lewis, M. Private tuition
Mayoss, G.A. Alexandra Coll., Shirley
[1]Slocombe, H.M. *do.* Alexander Coll., Shirley
Cartwright, G.E. *sh.* Ryde H. Comm. S., Ripley
Mellish, E.M. *f.mu.* Fairlight, Croydon
Day, D.G. Portsmouth Girls' Secondary S., Southsea
Waugh, S.W. *mu.* Pencraig S., Newport, Mon.
[1]Welsh, M. St. Paul's Convent S., Kilfinane
[1]Ashton, M.E. Private tuition
Cooper, M.A. Middle Class S., Paradise Sq., Sheffield
Flindt, N.E. *mu.* Elvaston, Dulwich
Neeld, N.W. *s.* Millburn H., Honor Oak Pk.
[1]Postle, E. Private tuition
O'Reilly, K. *mu.* Loreto Conv., St. Francis Xavier's, Gibraltar
[1]Burke, E.M. 109 Uxbridge Road, Ealing
Chilton, E.A. Private tuition
Fisher, D.M. *mu.* Pencraig S., Newport, Mon.
Jenkins, J.G. Private tuition
Meade, D.H. Royal Masonic Inst., Clapham Junction
Stone, M.E. Towcester School
Boodson, F. *f.* Clark's College High S., Tufnell Pk., N.
Harwood, N.C. St. Helen's Coll., Seven Kings
Hunt, E.M. The Manse, Buntingford
[1]Kett, F. Private tuition
Peel, A.E. *mu.* Pencraig S., Newport, Mon.
Eaves, H. Avenue S., Leigh
Edmond, S.F. *f.* Private tuition
[1]Havard, H.J. Private tuition
Haskall, K.E. Evering High S., Stoke Newington
Kendall, Muriel S. The Middle S., Holsworthy
[1]O'Donnell, N. St. Paul's Convent S., Kilfinane
[1]Young, E.M. *do.* Private tuition
Baxendale, E.L. Academy, Crewe
Johnson, G. Wilsford H., Devizes
Michalino, A. English High S., Constantinople
Pinchon, E.E.A. Portsmouth Girls' Secondary S., Southsea
Day, G.E. Weymouth P.-T. Centre
Truby, K.M. Stapleton Hall S., Stroud Green
Butcher, C.A.E. Bleak H., Brentwood
Corley, B.F. Stapleton Hall S., Stroud Green
Meader, A. St. Joseph's Coll. S., Totland Bay
Rodgers, C.E. Clark's College High S., Tufnell Pk., N.
Warwick, G.C. Parnella H., Devizes
Cronch, A.L. *mu.* Ryde H. Comm. S., Ripley
Hewett, C.F. *mu.* Glenarm Coll., Ilford
Kemp, I.E. Portsmouth Girls' Secondary S., Southsea
[1]Smith, A. Langley Private S., Langley
Greenwood, F.M. Alexandra Coll., Shirley
Norris, D.C.M. Private tuition
Poulton, C.M. *mu.* Ryde H. Comm. S., Ripley
Ost. F.A. *al.gm f.* Private tuition
Coomber, D.B. Stapleton Hall S., Stroud Green
McMillan, M.G. Private tuition
[1]Tummy, E. Private tuition
[1]Rea, L.A. Gram. S. for Girls, Worcester
Roberts, A.I., Pengwern Coll., Cheltenham
Seelly, L.A. *mu.* Private tuition
Shenfield, E.A.G. Stapleton Hall S., Stroud Green
Whittington, M.G. Bell's Gram. S., Colcford
Ponting, A.I. *mu.* Parnella H., Devizes
Bond, P. English High S., Constantinople
Aucott, M.K. *mu.* St. Dunstan's Coll., Margate
Baynham, M. Bell's Gram. S., Coleford
Richards, E.E. Pemberton Coll., Upper Holloway
Turner, K.M. The High S., Ely
Vincent, I.V. *f.* Private tuition
Jerome, E.F. Portsmouth Girls' Secondary S., Southsea
Kendall, May S. The Middle S., Holsworthy
McDermott, M. Conv. of Mercy High S., Camberwell
Holden, E E.M. Private tuition
Smith, E.M. Portsmouth Girls' Secondary S., Southsea
Colton, M. Towcester School
Dando, B. Private tuition
Kenning, M.F. *d.* Borough Coll. S., Rotherham
LeMay, G.B. St. John's H., Felixtowe
McGlade, E. St. Mary's Conv., The Newlands, Middlesbro'
Straton, D.M. Gosberton Hall Coll., nr. Spalding
Baker, I.K. Roanoke Coll. S., Palmer's Green
[1]LePla, E.R. Private tuition
[1]Nunan, M. St. Paul's Convent S., Kilfinane
Sutherland, K.J. Gelliwastad S., Pontypridd
Cooper, E J. *f.* Private tuition
London, D.V. Hedingham, Wallington
Bentham, E.L. *f.* Ravenscourt H., Ravenscourt Pk., W.
Biggar, W.A. Stapleton Hall S., Stroud Green
Billington, F.S. Parnella H., Devizes
Chapman, C.A.W. Private tuition
Constable, H. Blue Coat S., Hereford
Quinlan, Mary St. Paul's Convent S., Kilfinane
Arber, E.A.C. Portsmouth Girls' Secondary S., Southsea
Griffiths, K. Pengwern Coll., Cheltenham
McEwan, A.C. Alpha H., Harringay
Roach, M. *do.* Pengwern Coll., Cheltenham
Billington, E. Boys' High S., Barnsley

THIRD CLASS.

Honours Division.

Crouslé, P. *f.d.* Stonyhurst Conv., East Molesey
Summers, M.E.R. *s.f.ge.mu.* Redcliffe H., Southsea
Carton, P. *mu.* St. Monica's, Herne Bay
Platt, C.A. *s.e.a.mu.* Cambridge H., Wootton Bassett
Cole, M.K. *e.a.mu.* Chesterville S., Cirencester
Sisk, I. *e.mu.* Bourne H., Eastbourne
Parkinson, D. *e.g.mu.* Lonsdale H., Norwich
Wilson, M.E.S. *s.a.* Orton Coll., Coleshill
Hocking, E.M. *e.a.* Hemdean H., Caversham
Simpson, M.E *s.mu.* Beech Tree H., Market Drayton
Tanner, G.M. *s.d.mu.* Bourne H., Eastbourne
Scott, S.T. *e.* Crouch End High S., Hornsey
Burridge, K.R. *al.f.* Camborne H., Torquay
Hill, D.G. *s.e.h.a.d.* Alexandra Coll., Shirley
Young, J.M. *e.al.* Finsbury Park High S.
Harrison, D.G. *al.* Crouch End High S., Hornsey
Gross, P. *mu.* Rock Hill S., Chulmleigh
Growcott, G.M. *s.a.d.* 11 Church Street, Oldbury
Pengelly, D.E. *s.* Steyne S., Worthing
Knight, F.R. *s.e.a.* Towcester School
Willis, E.F. *s.* Holmwood Coll., Westcliff-on-Sea
Jones, E.G. *a.* Alexandra Coll., Shirley
Lane, E.E.M. *f.* Steyne S., Worthing
Hawkes, P.M. *e.* Cambridge H., Wootton Bassett
Olivey, A.I. *s.e.f.* Hemdean H., Caversham
Daniel, D.I. *al.d.* Private tuition
Myhill, E.K. *mu.* Lonsdale H., Norwich
Cooke, M.F. *s.* Wilsford H., Devizes
Crawley, D.G. *e.a.* Miss Butler's S., High St., Wroughton
Gaggero, F. *f.sp.mu.* Loreto Conv., St. Francis Xavier's, Gibraltar
Gerard, L. *f.* St. Mary's Conv. of Mercy, Chelsea
Swallow, A.D. *a.d.* Girls' Gram. S., Levenshulme
Denness, E.F. *e.a.* Alexandra Coll., Shirley
Happold, F.A. *e.a.* Hill Croft S., Bentham
Hadley, G.M. *g.f.* 11 Church St., Oldbury
Jones, F.M. *a.f.d.* Redcliffe H., Southsea
Shorrock, A.H. *e.al.* Breck Coll. S., Poulton-le-Fylde
Woods, G.H. Alexandra Coll., Shirley
Miles, D.E. *e.* Priory Coll., Hornsey
Roberts, E.H. *e.a.d.* St. Margaret's, Cardiff
Tucker, D.M. *s.e.a.* Glenthorne S., Redland, Bristol
Watson, E.M. *e.g.d.* 11 Church St., Oldbury
Balch, D.K. *a.* Cambridge H., Wootton Bassett
Brockington, R.C. *s.f.d.* Girls' High S., Taunton
Dick, G.L. *e.al.* Crouch End High S., Hornsey
Fourmy, M.V. *e.f.* Royal Masonic Inst., Clapham Junction
Hine, D.B. *e.a.* Camborne H., Torquay
Attias, M. *f.* Church of Scotland Mission S., Hasskeiu, Constantinople
Nicholson, M. *a.al.* Royal Masonic Inst., Clapham Junction
Pratt, E.B. *d.* 11 Church Street, Oldbury

THIRD CLASS.

Pass Division.

[2]Knight, J. Portsmouth Girl's Secondary S., Southsea
[2]Brown, B. *al.* St. Mary's Conv., The Newlands, Middlesbro'
[2]Hawson, D. *mu.* Ravensworth, Scarboro'
[2]Playfair, C.M. Claremont Coll., Corsham
[2]Burdon, M.L. Crouch End High S., Hornsey
[2]Graham, E.D.L. Private tuition
[2]Naar, D. *f.* Church of Scotland Mission S., Hasskein, Constantinople
[2]Chester, K. Ladies' Coll., Nantwich
[2]Henderson, S.H. Crouch End High S., Hornsey
[2]Myall, L. Lancefield Coll., Southend-on-Sea
[2]Simons, E. Portsmouth Girls' Secondary S., Southsea
[2]Taylor, L. Walsall Rd. Girls' S., Cannock
[2]Ford, P.N. Clark's College High S., Tufnell Pk., N.
[2]Herrieff, E.A. Southoe H., Richmond
[2]Bown, G. St. Agnes' S., Willesden
[2]McMillan, S.M. Havelock H., Southsea
Rae, M. *g.f.* Whitgift H., Croydon
Righton, D.E.A. *s.e.* Steyne S., Worthing
Atkinson, A. *mu.* Girl's Prep. S., Temperance Inst., Dudley
Auld, L.A. *a.* Alexandra Coll., Shirley
Bliss, G.M. *mu.* St. Monica's, Herne Bay
[2]Hutter, M. *ge.* St. Anne's High S., Westcliff-on-Sea
Marriott, N. *a.* Towcester School
Simmonds, M.E. Camborne H., Torquay
Davies, E.W. *e.* Woolston Ladies' Coll., nr. Southampton
Faulkner, G. *s.a.* Girls' Gram. S., Levenshulme
Malpass, J. Springfield S., Stockport
Parrett, W.E. St. Monica's, Herne Bay
Travis, K. *s.e.do.* Norma S., Waterloo, Liverpool
[2]Heath, C.A. Private tuition
Lebas, G. *f.d.* St. Mary's Conv. of Mercy, Chelsea
[2]Macfarlane, A.L.M. Portsmouth Girls' Secondary S., Southsea
Reading, H.M. *e.* Hemdean H., Caversham
Tucker, F.E. *a.* Royal Masonic Inst., Clapham Junction
Emerton, H.J. Royal Masonic Inst., Clapham Junction
Hooley, D. Springfield S., Stockport
Newman, E.S. Towcester School
Roberts, G. *s.* Girls' Gram. S., Levenshulme
Torrens, E. *e.a.* Royal Masonic Inst., Clapham Junction
West, E.P. Rock Hill S., Chulmleigh
[2]Bruce, B.D. Private tuition
Churchman, G.M. Lytham H., Newton Heath, Manchester
de la Wyche, M.R. Girls' Gram. S., Levenshulme
Handscomb, M.F. Crouch End High S., Hornsey
[2]Lion, J.H. Hillside Modern S., Wealdstone
Naoum, A. *al.f.* English High S., Constantinople
O'Reilly, L. Loreto Conv., St. Francis Xavier's, Gibraltar
Pullan, D.M. St. Monica's, Herne Bay
[2]Ryan, M. St. Paul's Convent S., Kilfinane
Seret, V.S.Y. *f.* St. Monica's, Herne Bay
Warrington, N. *s.* Bridge H., Sandbach
Cottrell, E.J. *al.f.* Hill Croft S., Bentham
Dorset, R.M. Arlington Villa S., Brighton

GIRLS, 3RD CLASS, PASS.—*Continued.*

Hinnenberg, E. *ge.* Ladies' S., The Close, Brighton
Hird, A.L. *e.* Private tuition
²Houston, E. Academy, Crewe
Humphreys, N.B. *a.* High-Trees Coll., Southbourne, Bournemouth
Munton, W.N. Towcester School
Springford, E. *mu.* Parnella H., Devizes
Stretton, E.L. *e.f.* Royal Masonic Inst., Clapham Junction
Taylor, S.B. *e.* Stapleton Hall S., Stroud Green
Walling, E.S.E. *s.e.* Private tuition
²Watts, O.B. Miss Lock's S., Fordingbridge

Holmes, L.K. *d.* Holmwood Coll., Westcliff-on-Sea
Jelliman, D.E. *e.a.f.* Pinner High S.
Langford, E.I. Harley H., Hereford
Merrell, M. Old Palace S., Maidstone
Nelmes, E.M. *a.al.gm.* Bell's Gram. S., Coleford
Papazian, A. *f.* English High S., Constantinople
Pitt, M.F.R. *s.* Gordon Square S. for Girls, W.C.

Axford, L.E.M. The Middle S., Holsworthy
Bell, K. *e* Temple Square S., Aylesbury
Howard, E.McK. *s.* Girls' Gram. S., Levenshulme
Matthews, L.A. Holmlea Girls' S., Ongar
Shaw, V. *s.* Ladies' S., The Close, Brighton
Thurston, G.E. *a.* Hainault H., Ilford

Ahier, K.M. *f.* Parochial S., St. Clement's, Jersey
Clark, E.G. St. Helen's Coll., Seven Kings
Francis, K.L. *e.* Millbridge H., Lower Edmonton
²Holstius, M.G. Yverdun, Brockley Rd., S.E.
Milton, L.T. *a.* Glenthorne S., Redland, Bristol
Page, A.L. Pinewood S., Fleet

Beaunier, G.R. French Conv., Newhaven
Beckmann, I.G. Hainault H., Ilford
Biuns, D.E. English High S., Constantinople
²Bouttell, R.O. Licensed Victuallers' Girls' S., S.E.
²Downing, B. Private tuition
²Dymond, L.M. Hoe Gram. S., Plymouth
Long, V. *e.g.d.* Private tuition
Madden, K.A M. Steyne S., Worthing
Pedelty, D.J. *e.* Royal Masonic Inst., Clapham Junction

Carter, H.E. Royal Masonic Inst., Clapham Junction
Franks, Y. *s.* Conway H., Faruboro'
²Hopkins, H.K. Licensed Victuallers' Girls' S., S.E.
Mazza, R. *al.f.* English High S., Constantinople
²Pillenger, L. Ion H., East Molesey

Bond, M.F.E. *al.* English High S., Constantinople
Brewster, A. Finsbury Park High S.
Coleman, D.E. *d.* The Magnolias Ladies' S., Southsea
Dixon, A.M. Gleuarm Coll., Ilford
²Fanshawe, M. Licensed Victuallers' Girls' S., S.E.
²Harris, W.L. Alexandra Coll., Shirley
²Johnson, C.J. Licensed Victuallers' Girls' S., S.E.
Marcu, I. *e.f.* Gordon Square S. for Girls, W.C.
Millbourn, I.H. Millbridge H., Lower Edmonton
Ovadiah, M. *s.d.* London Jews' Society Mission S., Constantinople
Sale, L. Temple Square S., Aylesbury
Tagg, D. *s.* French Protestant S., Shaftesbury Avenue, W.C.
Wallis, P.N. *s.* Alexandra Coll., Shirley
Wenber, D.J. St. James's Ladies' S., Jersey
Wiatt, M.R. Millbridge H., Lower Edmonton
Wood, C.E.M. Wellington Coll., Hastings

Ball, I.P. *d.* Woodward H., Sunderland
Frazer, D.M. *a.f.* Montpelier H., Brentwood
Lewis, M. *gm.* English High S., Constantinople
Playfair, N. *e.* Claremont Coll., Corsham
Wolstenholme, E.H. Lytham H., Newton Heath, Manchester

²Dening, N.M. Laurels High S., Walsall
Edwards, M.E. *s.* Girtonville Coll., Aintree
Eveling, J. Millbridge H., Lower Edmonton
Holmes, V.H. *e.* Holmwood Coll., Westcliff-on-Sea
Ramsden, W.M. *a.* Keyford College, Frome
Sewart, I.M. *a.* Royal Masonic Inst., Clapham Junction
Venion, M. *f.* English High S., Constantinople
Walkling, M.E. Freemantle High S., Southampton
Workman, G.M. Ryde H. Comm. S., Ripley

Ling, M.G.M. *f.l.* Private tuition
Mason, W.K. Redcliffe H., Southsea
²Nock, E.A. The Kingsley S., Shifnal
Paget, E.L. Steyne S., Worthing
Price, C.V R. *e.f.* St. Mary's Church High S., Torquay
Snowden, E. *mu.* Hopefield H., Norwich
Thomassin, L.C. *f.* French Conv., Newhaven

Bartlett, E.M. *f.* Gwyrfai H., East Cowes
Barzilai, E. London Jews' Society Mission S., Constantinople
²Biden, K.J.M. Headingham, Wallington
Dinham, E. Guinevere S., Torquay
Frearson, D. Girls' Prep. S., Temperance Inst., Dudley
Kevan, M.K. *e.* Royal Masonic Inst., Clapham Junction
Lewis, L.O. Ivy H., Hanwell
Owen, E. Norton Lodge, Small Heath, Birmingham

²Duffett, M. 16 Lavant St., Petersfield
Glanvill, J.J. Glenarm Coll., Ilford
²Jackson, J.H. High S., The Green, Twickenham

²Denison, C.M. Birklands, Harrogate
²Jones, A.M.S. St. Margaret's, Cardiff
²Lea, C. Academy, Crewe
Yonge, A.M. *e.* Clark's College High S., Tufnell Pk., N.

Childs, M.E. High S., Westminster St., Crewe
²Ferry, E. Royal Masonic Inst., Clapham Junction
Hawkings, A M. Oakover Girls' S., Burnham
²Heath, I.E.M. Roanoke Coll. S., Palmer's Green
Meyer, M M. Lousdale H, Norwich
²Pope, E.D. 109 Uxbridge Rd., Ealing
Walton, E.M. Gosberton Hall Coll., nr. Spalding

Best, H. Westcliff S., Southport
Brown, O. Academy, Crewe
Gourley, W.A. Holmwood Coll., Westcliff-on-Sea
Kitson, R.E. St. Monica's, Herne Bay
Mayall, D. *a.* Royal Masonic Inst., Clapham Junction
Messent, W.A. Hope Lodge S., Bexley Heath
Von Leonhardt, N.F.S.A. *ge.* Private tuition
Ward, D.K. The Haughton S., York
Wills, G.M. Royal Masonic Inst., Clapham Junction

²Daniel, E. Private tuition
Evans, H.M. *a.* Gram. S., New Quay, Cardiganshire
Francis, B. *d.* Hopefield H., Norwich
Hancock, E.M.P. *e.al.* Crouch End High S., Hornsey
Hibbs, C.V. *a.* Collegiate S. for Girls, St. Heliers, Jersey
Hopkins, F.C.M. Beaulieu S., Swanwick
Mazza, F. *f.* English High S., Constantinople
Powell, E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
²Tillott, E.M. Academy, Crewe

Amery, C.M. Royal Masonic Inst., Clapham Junction
Bell, K.M. Crouch End High S., Hornsey
Bentall, F.H. Private tuition
Bower, G.I. St. George's H., Doncaster
Brown, M.C. Royal Masonic Inst., Clapham Junction
²Conroy, J. Carlyle Coll., Clapham Common
²Hasler, F.M. Private tuition
Pettigrew, F.E. *a.* Harley H., Hereford
Richards, E.S.J. *a.* Harley H., Hereford
Rushbrook, M.C. *e.* Burstead H., Billericay
Vick, N.K. Guinevere S., Torquay
Wilson, H.J A. Avondale Coll., Winchmore Hill
Wycherley, I. High S., Westminster St., Crewe

Angel, K. Clark's College High S., Tufnell Pk., N.
Boulanger, I. *f.* Parochial S., St. Clement's, Jersey
²Clark, D.E. Private tuition
Durston, E.M. Oakover Girls' S., Burnham
Miller, V.I. Orton Coll., Coleshill
Paice, F.A. Royal Masonic Inst., Clapham Junction
Pakeman, R.I. Colville H., Swindon
Sabbage, M.J. Thorntonville Girls' S, Thornton Heath
Webb, W. Norma S., Waterloo, Liverpool

Clarke, H.C. Priory Coll., Hornsey
Dickson, L. Royal Masonic Inst., Clapham Junction
Martin, M.B. *f.* Redcliffe H., Southsea
Spencer, O.N. *e.* Private tuition

Bennett, D.A. Temple Square S., Aylesbury
Harris, V.E. *a.* Portland Coll., Chiswick
Kemp, I. *e.* Hemdeau H., Caversham
Le Gros, E.J. *f.* The Crown S., St. Martin's, Jersey
Whitson, E.M. St Helen's Coll., Seven Kings
Williams, D.A. Gelliwastad S., Pontypridd

Broad, N. Ladies' S., The Close, Brighton
Lunn, M.E. Gosberton Hall Coll., nr. Spalding
New, W. Royal Masonic Inst., Clapham Junction
Noble, V. Colville H., Swindon
Odell, A.M. Millbridge H., Lower Edmonton
Wall, M. Keyford Coll., Frome

²Gill, I. Gainsboro' S., Plymouth
Holme, L.E. Hill Croft S., Bentham
Lucas, W.L. Hill Croft S., Stamford Hill
Merryweather, K.M. Crouch End High S., Hornsey
Mourant, A.L. Collegiate S. for Girls, St. Heliers, Jersey
²Robson, H.M. Roanoke Coll. S., Palmer's Green

²Brewe, G.K. Laurels High S., Walsall
²Brown, A. 16 Lavant St., Petersfield
Caunter, G. St. Mary Church High S., Torquay
Davenport, F. Penketh School
Ewbank Smith, G.F. Wellington Coll., Hastings
Garrod, V.J. *s.* French Protestant S., Shaftesbury Av., W.C.
Henwood, W.N. *a.* Burton H., Weston-s.-Mare
Keen, D.J. Temple Square S., Aylesbury
Lane, G. *a.* Girls' Prep. S., Temperance Inst., Dudley
Prue, I.W. Towcester School
²Smith, B.M. The Manse, Buntingford
Tapp, M. *a.* Girls' High S., Taunton
Thompson, L.E. *s.* Private tuition
Tomkins, D.L. Heath Dene, Southend-on-Sea

²Allen, E.M. London Coll., Goodmayes
Booth, L. Eskdale S., Timperley
Green, A.G. Harley H., Hereford
Green, L.D. London Coll., Goodmayes
Herbert, G. St. George's H., Doncaster
Kilbey, F.M. *f.* School for Girls, Trinity Terrace, Cheltenham
Mitchell, L.E. Finnart S., Newquay
Morley, F.L. St. Mary Church High S., Torquay
Orridge, G.M.L. St. Margaret's High S., Leigh-on-Sea
Parrett, M.C. St. Monica's, Herne Bay
Rampton, E.E. Alresford S., Chislehurst

Collius, L.R. Royal Masonic Inst., Clapham Junction
Dobbins, D.H. Girls' High S., Taunton
Gleave, E. Highfield S., Bramhall
Marett, L.J. Plaisance Terrace S., St. Luke's, Jersey
Monger, K.E. *f.d.* Private tuition
Morris, C.S. Colville H., Swindon
Nathan, P. Brook Green Girls' Coll.
Raywood, D.M. Harley H., Hereford
Robinson, M.A. Licensed Victuallers' Girls' S., S.E.
²Schulze, O.B. Chatham H., Wimbledon
Spear, F.L. Essex H., Saltash
Tooley, V. *s.* Camden H., Biggleswade

Bailey, H.L. Hornchurch High S.
Caunter, E.M. St. Mary Church High S., Torquay
Fisher, F. Cambridge H., Camden Rd., N.
Jenkins, A.E. S. Wales High S., Maesycwmmer
Jones, A.L. Gosberton Hall Coll., nr. Spalding
Mackenzie, P.C. Senghenny H., Caerphilly
Pethybridge, L.M. Marist Conv. S., Paignton
Smith, M. *s.* S. Wales High S., Maesycwmmer
Sowerby, J.C. Girls' Tech. S., Wimbledon
²Spenceley, A.D. St. Margaret's, Cardiff
Thomason, B.I. Orton Coll., Coleshill

Entwisle, E.M. Woking High S.
Gottfrey, W. Woking High S.
Harrison, D. Gosberton Hall Coll., nr. Spalding
Hilton, E.F. French Protest. S., Shaftesbury Av., W.C.
Hodgkison, G. *e.* St. Monica's, Herne Bay
Holmes, E. St. Agnes' S., Willesden
²Peyniehoux, M.J. *f.* Private tuition
Tannenbaum, D.M. Alleyn Coll., Margate

Baker, A.C. Alwyne Coll., Canonbury
Basker, M.K. Beaurivage S., Weston-s.-Mare
Cunningham, N. Ropley Lodge, New Southgate
Goldenberg, R. Hebrew Mission Girls S., Streatham Common
Herbert, O.A. Royal Masonic Inst., Clapham Junction
Jeffrey, I.J. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Norman, B. Academy, Crewe
Shapland, I.C.S. Oakover Girls' S., Burnham

Carter, T.M. Temple Square S., Aylesbury

Hancock, M.G. Crouch End High S., Hornsey
Lewis, V.C.G.A. *e.* Gelliwastad S., Pontypridd
Perryman, E.S. Alwyne Coll., Canonbury
Port, W.M. Marist Conv. S., Paignton
Rogers, M.E. Harley H., Hereford
Smith, B.H. Royal Masonic Inst., Clapham Junction

Brown, E.M. Penketh School
Kendall, V.S. The Middle S., Holsworthy
Munday, P.I.M. Cornwallis High S., Hastings
Pailthorpe, R.A. *a.* Hornchurch High S.
Parkin, E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Russell, E.M. Redcliffe H., Southsea
Smith, R.C. Grosvenor H., Wokingham
Spinks, D.M. Beaulieu S., Swanwick
Tuczek, V.L. Portland Coll., Chiswick
Vingoe, E.F. Acton High School

Baker, E.E. Harley H., Hereford
Bessant, G.E. Ryde H. Comm. S., Ripley
Butler, D.E. St. Monica's, Herne Bay
Colmer, D.C. Woolston Ladies' Coll., nr. Southampton
Prout, K. Highfield S., Pendleton
²Webb, E.A. Lancefield Coll., Southend-on-Sea
Wilson, A.M. Gordon Square S. for Girls, W.C.

Cooper, M.L. Chichester H., Mortimer
Ferry, K.A. Royal Masonic Inst., Clapham Junction
Jefferies, E.L. Pinewood S., Fleet.
Lander, L. The Magnolias Ladies' S., Southsea
Trend, D. Whitgift H., Croydon

Hawkes, E. St. Hilda's, Beltinge, Herne Bay
Mason, L.B. Alleyn Coll., Margate
Yull, W.A. Bleak H., Brentwood

Bradley, D. Richmond High S., Liscard
Lucas, A.V. St. George's H., Doncaster
Wragg, A. Licensed Victuallers' Girls' S., S.E.

Appleton, D.I. Burton H., Weston-super-Mare
Beasley, G. Crouch End High S, Hornsey
Bishop, W. Holmlea Girls' S., Ongar
Churchward, A.C. Arlington Villa S., Brighton
Gill, N. St. George's H., Doncaster
Green, E.L. Licensed Victuallers' Girls' S., S.E.
Hughes, D.M. Beaurivage S., Weston-super-Mare
Lawler, D.F. Alresford S., Chislehurst
Walker, M.E. The Magnolias Ladies' S., Southsea
Wolfers, G. Margate Jewish Coll.

Baughan, B F. Portland Coll., Chiswick
Canterbury, F.M.E. St. Winifred's High S. for Girls, Southampton
Daniel, D.L. Royal Masonic Inst., Clapham Junction
Hodge, J.E. Priory Coll., Hornsey
Tarr, K.H. Ryde H. Comm. S., Ripley

²Betts, G.M. Carlyle Coll., Clapham Common
Davies, S.M. Private tuition
Marshall, K.W. Private tuition
McOwan, H. Corner H., Godstone
Williams, J. Preswylfa High S., Cardiff

Bristow, T. St. Peter's S., Bournemouth
Drayton, O.M. Collingwood Coll., Lee
Goodman, E.M. Ryde H. Comm. S., Ripley
Grover, D.H. Camden H., Biggleswade
Thorpe, D.E. St. Margaret's High S., Leigh-on-Sea

Dickens, G.H. Hazelhurst Coll. S., Penarth
Hanson, M. Crouch End High S., Hornsey
Smith, L.E. Grosvenor H., Wokingham

Franklin, D.K. Gram. S. for Girls, Worcester
Gange, B.L. Royal Masonic Inst., Clapham Junction
Hatswell, D.M. Glenthorne S., Redland, Bristol
Whiting, D.C. Ryde H. Comm. S., Ripley

Alexander, M.B. Crouch End High S, Hornsey
Broad, C. Ladies' S., The Close, Brighton
Wells, L. Ousegate S., Selby

²Smith, M. Canning St. Council S., Benwell
Wentworth, E.S. Woodhouse Lodge, Biddulph

Barnard, G. Holmlea Girls' S., Ongar
Hale, D.F. Claughton Coll., Romford
Kändt, L.L. Cambridge H., Camden Rd., N.
Yeomans, R. Holmlea Girls' S., Ongar

Holmes, I.N. Collingwood Coll., Lee
Sparks, O. Atcombe H., Barry

LOWER FORMS EXAMINATION.—PASS LIST, CHRISTMAS, 1909.

BOYS.

Abraham, A.C. Handel Coll., Southampton
Acton, G.R. Cambridge H., Northdown, Margate
Acton, N.F. Cambridge H., Northdown, Margate
Adams, R. Barry Secondary and Comm. S.
Ahier, C.F. Parochial S., St. Clement's, Jersey
Ahier, W.J. Parochial S., St. Clement's, Jersey
Ahrens, T.A. St. Aubyn's, Woodford Green
Alford, E.R. Chaloner's S., Braunton
Allan, F.V. The Western Coll., Harrogate
Allen, G. Grosvenor H., Wokingham
Alletson, L.G. Penketh School
Almond, H W. Lytham College
Almond, L. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Alstrom, R.J. Cliftonville Coll., Margate
Alvargonzalez, J. Leighton Hall S., Carnforth
Ames, F.A. St. Dunstan's Coll., Margate
Anderson, A.C J. Streatham Gram. S.
Andrews, J.W. Steyne S., Worthing
Arkill, L.W. Manor H., Clapham Common
Arnold, J. The Greystones S., Scarborough
Arnold, L. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Ashdown, K. Froebel H., Devonport
Ashford, C.F. Waterlooville College
Ashford, R H. Ryde House Comm. S., Ripley
Ashford, S.D. Waterlooville College
Ashton, E. Hutton Gram. S.
Ashton, H.B Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Aucott, G.W. St. Dunstan's Coll., Margate
Ayre, J. South Molton Upper S.
Bake, H.E.L. Linton, Southend-on-Sea
Baker, E T. Richmond Hill School
Baker, M.E. Bedford H., Folkestone
Baker, W.H. West End S., Jersey
Baldwin, R. St. Dunstan's Coll., Margate
Ball, N.J.A.E. Southport Modern S.
Ball, W. Hutton Gram. S.
Bamford, J.L. Southport Modern S.
Barker, F.L.D. Clifton Coll., Harrogate
Barlow, R E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Barnes, R. Grosvenor Coll., Carlisle
Barraclough, W.M. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bartholomew, J.S Les Landes H., Faldouet, Jersey
Basdon Smith, A. Manor H., Clapham Common
Bastard, S.J. Mary Street H., Taunton
Bauche, A.W. Clair-Val S., Gorey, Jersey
Beall, J.S. Barton S., Wisbech
Bedford, C.P. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Beer, R.W. Coll. S., Bridgwater
Bell, J.A. Arnold H. with Waterloo Coll., Northampton
Bell, P.A. Hutton Gram. S.
Bell, R.D. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bentley, J.C. Kilgrimol S., St. Annes-on-Sea
Berry, W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bessant, F. Ryde House Comm. S., Ripley
Beynes, N.E. Manor H., Clapham Common
Beynon, W. Barry Secondary and Comm. S.
Bicker Caarten, V.H. Maida Vale School, W.
Bickerton, H.E.S. Gram. S., Stroud Green
Birnage, N. Highfield S., Pendleton
Blackburn, J. Ryde House Comm. S., Ripley
Blampied, R.C. Oxenford H., St. Lawrence, Jersey
Bland, T.A. Tollington Park Coll., N.
Blatchford, V.W. Green Park Coll., Bath
Bloomer, H.P. Kilgrimol S., St. Annes-on-Sea
Boby, R S.P. Tollington Park Coll., N.
Boddy, K.W.G. Manor H., Clapham Common
Boldero, W G. Southdown Coll., Willingdon, Eastbourne
Bonar A.W. Taunton School
Bond, J.E. Tollington Park Coll., N.
Botting, J.E. Ryde House Comm. S., Ripley
Bowen, A.G. Modern S., Gravesend
Bradley, H. New College, Harrogate
Bradshaw, H.E. Littleton H., Knowle, Bristol
Braugwin, H.E. Gram. S., Stroud Green
Brée, C.H Oxenford H., St. Lawrence, Jerscy
Brenton, T.R. Gram. S., East Finchley
Brett, R.J. Brunswick H., Maidstone
Brewer, W.S. Oakover Girls' S., Burnham
Broderick, H. Wilmslow Gram. S.
Brook, G. New Coll., Harrogate
Brook, H.I. Penketh School
Brooks, H.C. Tollington Park Coll., N.
Brown, C.A. Castle Dene S., Newport, I.W.
Brown, C.G. Castle Dene S., Newport, I.W.
Brown, C.H.S. Coll. S., Bridgwater
Brownscombe, J.K. Brunswick H., Maidstone
Bruce, E.R. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bruford, R. Mary Street H., Taunton
Brumfit, K.F. Malvern H., Folkestone
Brundrett, P. Wilmslow Gram. S.
Bugler, A.J.C.A. St. Aubyn's, Woodford Green
Bumstead, V.C. Cliftonville Coll., Margate
Burgess, A.L. Saham Coll., Watton
Burgess, P.J. Bedford H., Folkestone
Burke, A.L. West End S., Jersey
Burnett, R.J.N. The Coll., Rock Ferry
Burroughs, E. Barry Secondary & Comm. S.
Burrows, E.G. Modern S., Gravesend
Burrows, R.E. Brunswick H., Maidstone
Burt, R.E. Collett H., Bournemouth
Bushell, A. Hillcroft S., Mortimer
Bustin, B.B. Montgomery Coll., Sharrow
Butler, D.W. Ryde House Comm. S., Ripley
Butler, F.J. Ryde House Comm. S., Ripley
Button, A.L. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Caddel, J.L. Modern S., Gravesend
Cadwallader, A.J. Hutton Gram. S.
Callingham, R.R. The Douglas S., Cheltenham
Carrington, O.L. Taunton School
Carter, T.L. Taunton School
Cary, T.F.L. Croxton, Southport
Catt, F.L. Shorcham Gram. S.
Chambers, J.S. St. Anbyn's, Woodford Green
Chapman, H.A. Arnold H. with Waterloo Coll., Northampton
Cheshire, W.H.W.E. Tollington Park Coll., N.
Chester, J H.R Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Chipp, F.C. Tollington Park Coll., N.
Chitty, F.H. Oxford H., Junction Rd., N
Clark, C. Froebel H., Devonport
Clark, E.W. Streatham Gram. S.
Clark, H.M. Seaford College
Clark, W.L. Lulworth H., Caerleon Mon.
Clarke, A.N. Cliftonville Coll., Margate
Clarke, E. Cliftonville Coll., Margate
Clarke, R. The College, Weston-super-Mare
Clatworthy C.W. Coll. S., Bridgwater
Clatworthy, J.N. Coll. S., Bridgwater
Clayton, H. Abbotsford S., Folkestone
Clayton, R.A. The Harrogate Modern Coll.
Clements, P. The College, Rock Ferry
Cleminson, R. Ion H., East Molesey
Cleverdon, C. Steyne S., Worthing
Clift, W.A. Jersey Modern S., Jersey
Close, E. Barry Secondary & Comm. S.
Cobb, W E. Jersey Modern S., Jersey
Cockram, F. Froebel H., Devonport
Cohen, R. Margate Jewish Coll
Cole, F.L.J. Broomfield Pk. Coll., New Southgate
Cole, L.B. Swindon High S.
Cole-Whitehorne, L. Shoreham Gram. S.
Collett, C.J. The Douglas S., Cheltenham
Collinson, F. Cliftonville Coll., Margate
Colwell, A.E. Herne Bay College
Condell, T.H. Hillcroft S., Mortimer
Connard, C. Southport Commercial Coll.
Cooke, E.A. Maida Vale School, W.
Cooke, H.L. Tollington Park Coll., N.
Cooper, C.E. High S., South Shore, Blackpool
Cordwell, G B. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Cornall, A.E. The Middle S., Holsworthy
Cornford, L.F. Steyne S., Worthing
Cotton, W.E.S. New Coll., Harrogate
Crabtree, C.M. High S., South Shore, Blackpool
Cristol, J. Margate Jewish Coll.
Croft, B.E. Shoreham Gram. S.
Crompton, J.A. Winchester H., Bristol
Cross, E.H. Southdown Coll., Willingdon, Eastbourne
Cubison, R.P. Schorne S., North Marston
Cunningham, E.H. Hutton Gram. S.
Currie, C.J. Southdowu Coll., Willingdon, Eastbourne
Curtis, C.C. Boys' Coll. S., Aldershot
Dadd, T.E. Brunswick H., Maidstone
Dadds, H.F. Commercial Coll., Acton
Dale, O.B. Herne Bay College
Daniel, W.E. The Middle S., Holsworthy
Dann, P.W. Hutton Gram S.
Darney, R.M. Malvern H., Folkestone
Dauncey, A.H. Taunton School
Davey, C. Shoreham Gram. S.
Davidson, J.T. Wincobank, Cliftonville, Margate
Davies, G. Barry Secondary & Comm. S.
Davies, G L. Manor H., Clapham Common
Davies, H.V. Holly Bank S., Frodsham
Davies, R.F.M. Commercial Coll., Acton
Davis, E.M. Wilsford H., Devizes
Davy, S. Shoreham Gram. S.
Deacon, E.C. Hillcroft S., Mortimer
Dean, H.R. Tollington Park Coll., N.
Dearlove, B. Grosvenor H., Wokingham
De Brémond, F.L. French Gouin S., Runnymede, Eastbourne
De Carteret, E.G. Oxenford H., St. Lawrence, Jersey
De Carteret, F.S. Oxenford H., St. Lawreuce, Jersey
Defriez, E.H. Licensed Victuallers' S., Lambeth
Delyon, W.F. Handel Coll., Southampton
Dence, A.F. Manor H., Clapham Common
De Quetteville, P.S. Oxeuford H., St. Lawrence, Jersev
De Veuille, C. Jersey Modern S., Jersey
Diplock, A.T. Wincobank, Cliftonville, Margate
Dixon, C.H. Seaford College
Donald, M.B. The Western Coll., Harrogate
Doré, C.U. Shoreham Gram. S
Downing, R.E. Chaloner's S, Braunton
Downs, J. New Coll., Harrogate
Driver, A. The Western Coll., Harrogate
Dubras, L.L.L. Oxenford H., St. Lawrence, Jersey
Eardley, H. High S., Market Drayton
East, R. Brunswick H., Maidstone
Easterbrook, H. Richmond Lodge, Torquay
Eckersley, C.R. Cram. S., Sale
Edge, E. Kelvin Coll., Penarth
Elliott, G.W. Raleigh Coll., Brixton
Elliott, T.L. Bedford H., Folkestone
England, A.J.E. Shoreham Gram. S.
Erroll, A.C. Erin H., Walton-on-Naze
Enstice, L.G. Coll. S., Bridgwater
Evaus, I.L. Barry Secondary & Comm. S.
Evemy, M.F. Swindon High S.
Everett, F. Shoreham Gram. S.
Farley, W. The Limes, Buckhurst Hill
Farrants, T. Licensed Victuallers' S., Lambeth
Farrell, J. Richmond Hill School
Farrington, R. Wilmslow Gram. S
Farrow, H.T. Croad's S., King's Lynn
Faux, H.B. Licensed Victuallers' S., Lambeth
Fawcett, P. Hutton Gram. S.
Fazakerly, R. Jersey Modern S., Jersey
Ferguson, D.C.H. Wellesley H., Forest Hill
Filmer, D.H. Taunton School
Fletcher, J.G. Shoreham Gram. S.
Flint, J.W.R. Tollington Park Coll., N.
Foden, S. Belper Gram. S.
Foot, H.O. St. Aubyn's, Woodford Green
Ford, E.A. Mary Street H., Taunton
Ford, G.W. Belper Gram. S.
Ford, M. Penketh School
Ford, S. Grosvenor H., Wokingham
Forth, C. Kilgrimol S., St. Annes-on-Sea
Foulfoin, H. St. John's Coll., Southsea
Fox, A.G Gram. S., Stroud Green
Francis, J.H. The Douglas S., Cheltenham
Fraser, D.N. Barry Secondary & Comm. S.
Freeman, G.W. Manor H., Clapham Common
Friend, C.J. Preston Gram. S., Brighton
Fulton, R. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Furnival F.S. High S., Market Drayton
Fussell, W.H. Brunswick H., Maidstone
Gale, E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Gammon, K. Taunton School
Gardner, W.F. Leighton Hall S., Carnforth
Gaskell, J. Southport Commercial Coll.
Cavey, A.J. Oxenford H., St. Lawrence, Jersey
Cear, C.R. Chaloner's S., Braunton
Gibson, E.W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Gifford, S. Abbotsford S., Folkestone
Giles, M. Barnet Preparatory S. for Boys
Gloster, A.E. Ryde House Comm. S., Ripley
Goffey, J.G. Schorne S., North Marston
Graves, J.H. The Western Coll., Harrogate
Green, W. High S., Market Draytou
Greenslade, L.E. Bradley High S., Newton Abbot
Griffiths, B.M. Southport Modern S.
Gross, V. Manor H., Clapham Common
Groves, W.J. Boys' Coll. S., Aldershot
Guttridge, G.H. Wilmslow Gram. S.
Hadrill, C.I. Tollington Park Coll., N.
Haggett, W.A. Coll. S., Bridgwater
Hall, A.F.F. Clifton Coll., Harrogate
Hall, C. Kilgrimol S., St. Annes-on-Sea
Hall, C.S. Commercial Coll., Acton
Hall, H.H. Steyne S., Worthing
Hall, L.E. S. Farnboro' High S.
Halliwell, N. High S., South Shore, Blackpool
Halsall, F.E.R. Southport Commercial Coll.
Hambly, W. Froebel H., Devonport
Hamilton, D. Shoreham Gram. S.
Hammett, R.W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Handley, J.A. Modern S., Gravesend
Handley, J.W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Hardcastle, W.W. Penketh School
Hardern, G.D. Penketh School
Harper, M. Mossley Hall S., Congletou
Harris, D. Maida Vale School, W.
Harris, F.D. Ryde House Comm. S., Ripley
Hawes, R.D. Seaford College
Hawkes, B.S. Comm. S., Stratford-on-Avon
Hawling, H.H. Green Park Coll., Bath
Hayes, H.G. Collett H., Bournemouth
Hayman, W.D. Winchester H., Bristol
Healey, D. Newquay College
Heasler, G.R. Ryde House Comm. S., Ripley
Helsby, A.J. Lytham College
Hendry, C.T. Tollington Park Coll., N.
Henry, D.G. Tollington Park Coll., N.
Henry, E. Jersey Modern S., Jersey
Hepworth, A.S. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Herd, S. Girtonville Coll., Aintree
Herlihy, G. Froebel H., Devonport
Herlihy, J.L. Southampton Boys' Coll. & High S.
Hibberd, T. Oxford H., Junction Rd., N.
Hicks, M. Cliftonville Coll., Margate
Hicks, M.J. Swindon High S.
Hindley, H.C. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Hobbs, E.J. Comm. S., Stratford-on-Avon
Hobbs, F.B. Mary Street H., Taunton
Hobbs, H.P. Steyne S., Worthing
Holland, W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Hollidge, H.W. Tollington Park Coll., N.
Holloway, B.G. Arnold H. with Waterloo Coll., Northampton
Holman, W.T. Manor H., Clapham Common
Holt, A.B. Handel Coll., Southampton
Holwill, J.H.I. Tauuton School
Hook, P.W. Avenue H., Sevenoaks
Horne, A.E. Herne Bay College
Horsey, J.F Auerley College

BOYS, LOWER FORMS—*Continued.*

Horton, T.G. Cliftonville Coll., Margate
Huggins, F.E. Modern S., Gravesend
Hungerford, W. Bedford H., Folkestone
Hutchings, D.A. Waterlooville College
Hutson, D.J. Barton School, Wisbech
Hutton, H.O. Clair-Val S., Gorey, Jersey
Hyman, A.R. Preston Gram. S., Brighton
Ieka, A. Barry Secondary & Comm. S.
Ingarfield, W.F. St. John's Coll., Brixton
Ingham, H. Hutton Gram. S.
Isaacs, L. Commercial Coll., Acton
Jackson, F. Southport Modern S.
Jaggar, J. New College, Harrogate
Jago, H.D. Froebel H., Devonport
James, E.W. Tollington Park Coll., N.
James, F. Newquay College
James, J.R. Taunton School
James, L. The Douglas S., Cheltenham
James, W.P. Shoreham Gram. S.
Jarvis, A.H. Taunton School
Jennings, C.E. Margate Comm. S.
Jewell, J. Herne Bay College
Johns, C. Barry Secondary & Comm. S.
Johnson, C. Licensed Victuallers' S., Lambeth
Johnson, T. Southport Comm. Coll.
Johnson, T.F.G.
Southampton Boys' Coll. and High S.
Johnstone, W.D. Preston Gram. S., Brighton
Jolliffe, B. Froebel H., Devonport
Jones, F.C.N.
Broomfield Pk. Coll., New Southgate
Jones, W.E. Chaloner's S., Braunton
Jones, W.M. Park Coll., Tottenham
Joseph, W.E. Taunton School
Joy, E.C. Herne Bay College
Joyce, B.M. Anerley College
Kalber, F. Jersey Modern S., Jersey
Keeley, F. Southport Commercial Coll.
Keeley, H. Southport Commercial Coll.
Keeson, C.A.G.C.
Grosvenor S., W. Hampstead
Keith, S.H. Taunton School
Kelsall, A. Wilmslow Gram. S.
Kershaw, H.S. The Harrogate Modern Coll.
King, B. Brunswick H., Maidstone
King, C.E. Richmond Hill School
Kingsmill, G.M. Bedford H., Folkestone
Kingsmill, H.L. Gram. S., Stroud Green
Kirk, J.P. Barton S., Wisbech
Knowles, T. Barton S., Wisbech
Lachlan, D.G. Anerley College
Ladbroke, H.A. Tollington Park Coll., N.
Lambert, S. Gram. S., Sale
Lane, W.G.B. Croad's S., King's Lynn
Langdon, G.B. Chaloner's S., Braunton
Langlois, G.E.
Harleston H., St. Lawrence, Jersey
Law, J. St. John's Coll., Brixton
Lawton, S. St. Leonards Coll. S.
Le Brocq, D.
Oxenford H., St. Lawrence, Jersey
Le Cornu, T. Jersey Modern S., Jersey
Le Couteur, G.P.
Oxenford H., St. Lawrence, Jersey
Lees, A.J. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Leins, R.C.A.J. Tollington Park Coll., N.
Le Marquand, E.C.
Harleston H., St. Lawrence, Jersey
Le Masurier, C.
Oxenford H., St. Lawrence, Jersey
Le Masurier, G.
Les Landes H., Faldouet, Jersey
Le Mière, G. Jersey Modern S., Jersey
Le Moignan, P.G.
Harleston H., St. Lawrence, Jersey
Le Petit, P.H.S.
Parochial S., St. Clement's, Jersey
Le Poidevin, J. Jersey Modern S., Jersey
Le Sauteur, E.E.
Oxenford H., St. Lawrence, Jersey
Levers, W.J. Barry Secondary and Comm. S.
Lewer, A.J. Shoreham Gram. S.
Lewis, E.W. Weymouth Comm. S.
Lewis, H. Barry Secondary & Comm. S.
Linfield, W.A. Steyne S., Worthing
Lloyd, C.F. Licensed Victuallers' S., Lambeth
Lloyd, H. Barry Secondary & Comm. S.
Lloyd, W. Barry Secondary & Comm. S.
Lockwood, F. Hutton Gram. S.
Lockwood, G.K. New Coll., Harrogate
Lopez, F.A.M. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Lovick, A.J. Hillcroft S., Mortimer
Lucas, R. Boys' Coll. S., Aldershot
Luck, F.W.
Southdown Coll., Willingdon, Eastbourne
Ludlow, L.L. Tollington Park Coll., N.
Lueder, E.H. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Lulham, S.T. The Douglas S., Cheltenham
Lyndell, E.W. Anerley College
Mack, F.G. Anerley College
Mackay, A.J.
Oxenford H., St. Lawrence, Jersey
Mackie, E.M.D. St. John's Coll., Brixton
Macleod, N.M.
St. Catherine's Coll., Richmond
Maddison, R. Barry Secondary & Comm. S.
Marchant, M.
The Paddock, Maison Dieu Rd., Dover
Marriott, L.P. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Marrison, J.W.
Mannamead S. Walmer H., Mannamead
Martin, T.E. Modern S., Gravesend
Martyn, L.A. Newquay College
Mason, G.T.W.
Southampton Boys' Coll. & High S.
Mason, R.A. Anerley College
Mason, S.H. Anerley College
Masters, C. Southport Commercial Coll.
Mather, A.R. Wilmslow Gram. S.
Matthews, R. St. Leonards Coll. S.
May, A.C. Coll. S., Bridgwater
May, J.T. Newquay College
May, P. Newquay College
McClinnan, C. Wilmslow Gram. S.
McKenzie, H.H.
Licensed Victuallers' S., Lambeth
McKnight, E.
Southdown Coll., Willingdon, Eastbourne
McRae, C. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Mead, A. Coll. S., Bridgwater
Mesny, H.C.
Oxenford H., St. Lawrence, Jersey
Millard, G.E.H. Coll. S., Bridgwater
Mills, F. Belper Gram. S.
Moffat, G.R.
Broomfield Pk. Coll., New Southgate
Molineux, J. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Monckton, A.S. Brunswick H., Maidstone
Moor, L.G. Cliftonville Coll., Margate
Morford, L. Wincobank, Cliftonville, Margate
Morris, S. Ryde House Comm. S., Ripley
Moss, F.T. Brunswick H., Maidstone
Mossop, W. Southport Commercial Coll.
Mould, D.K. Swindon High S.
Mourant, C. Jersey Modern S., Jersey
Mulchinock, H.H.L.M.
Preston Gram. S., Brighton
Mulliner, R.A. Southport Modern S.
Mumford, R.D.W. Weymouth Comm. S.
Munyard, F.W. Cliftonville Coll., Margate
Murphy, F.P. Raleigh Coll., Brixton
Murray, D.T.C. Seaford College
Murray, W.J. Tollington Park Coll., N.
Nash, D.R. Waterlooville College
Neave, E.J. Handel Coll., Southampton
Neukirchner, L.C. Gram. S., Stroud Green
Nevill, F.S. Barton S., Wisbech
Newell, E.L. Taunton School
Newell, H.F. Cliftonville Coll., Margate
Newell, S.F. Cliftonville Coll., Margate
Nichol, C. The Harrogate Modern Coll.
Nichols, R.F. Commercial Coll., Acton
Nicoll, D.S. Ryde House Comm. S., Ripley
Noel, G.G. Clair-Val S., Gorey, Jersey
Norton, J.W. Scarboro' Gram. S.
Norwood, L.H.
Bestreben High S., Brondesbury
Ogdeu, W.F. The Greystones S., Scarborough
Oliver, B. Brunswick H., Maidstone
Oliver, D.C.M.
Wincobank, Cliftonville, Margate
Olley, V. Shoreham Gram. S.
Ordish, R.H. Richmond Hill School
Oxley, R.C. Modern S., Gravesend
Paget, J. Steyne S., Worthing
Pallot, E.N. Parochial S., St. Clement's, Jersey
Parker, B.R. Endcliffe Coll., Sheffield
Parker, G.W. Hutton Gram. S.
Parker, W. Comm. S., Stratford-on-Avon
Parks, F.H. Preston Gram. S., Brighton
Parnell, E.A. The Middle S., Holsworthy
Parris, R. Oxenford H., St. Lawrence, Jersey
Parriss, E. Comm. S., Stratford-on-Avon
Paul, H.A. Wincobank, Cliftonville, Margate
Paul, W.D.M. Taunton School
Payne, P. Handel Coll., Southampton
Peachey, G.B. Linton, Southend-on-Sea
Peachey, L.B. Linton, Southend-on-Sea
Pearson, A.G. Priory Coll., Hornsey
Pearson, G.H. Hutton Gram. S.
Peden, J.A. Malvern H., Folkestone
Penhale, A.D. The Middle S., Holsworthy
Perkins, E.G. Ryde House Comm. S., Ripley
Perkins, T.G.G. Shoreham Gram. S.
Perry, C.A.
Broomfield Pk. Coll., New Southgate
Phillips, F.J. Preston Gram. S., Brighton
Phillips, W. Southport Commercial Coll.
Phillips, W.A. Preston Gram. S., Brighton
Pickford, A.M. Kilgrimol S., St. Annes-on-Sea
Pipon, E.G.
Harleston H., St. Lawrence, Jersey
Pleven, P.A.
Parochial S., St. Clements, Jersey
Pommier, F. Seaford College
Potter, R.G. Leighton Hall S., Carnforth
Powell, G.C. Wilmslow Gram. S.
Powell, H.W. Devonshire H., Orpington
Priestley, C.L. Richmond Lodge, Torquay
Pritchard, H. Private tuition
Pryer, E.J. St. Peter's S., Lee
Pumphrey, F.A. Taunton School
Pym, P.E. Belper Gram. S.
Quarmby, J.S. New Coll., Harrogate
Quick, L.J. Malvern H., Folkestone
Rainey, C.M. The College, Weston-super-Mare
Randall, L.B. West End S., Jersey
Randall, S.H. Gram. S., Stroud Green
Redfern, T.A. Belper Gram. S.
Redshaw, W.G. Brunswick H., Maidstone
Reece, E.H. Taunton School
Reeks, S.T.C. Collett H., Bournemouth
Refet, M.K. St. Catherine's Coll., Richmond
Reid, A. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Rice, E.E. Taunton School
Richards, H. Barry Secondary & Comm. S.
Richardson, P.E.
Kilgrimol S., St. Annes-on-Sea
Riddell, R.N. Chaloner's S., Braunton
Riddell, W.R.W. Chaloner's S., Braunton
Ridge, F.L. Bradley High S., Newton Abbot
Ridley, A. Shoreham Gram. S.
Ridley, C.L. Collett H., Bournemouth
Rivers, H.W. Kilgrimol S., St. Annes on-Sea
Robbins, W.B. Brentwood High S.
Roberts-Wray, E.E.V. St. Peter's S., Lee
Robins, E.J.H. Tollington Park Coll., N.
Robinson, A.V. New Coll., Harrogate
Robinson, G.E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Rogers, H.
The School, Wellington Rd., Taunton
Rollinson, G.R.P. Scarboro' Gram. S.
Roocroft, E. Kilgrimol S., St. Aunes-on-Sea
Roper, E.G. Hillcroft S., Mortimer
Rouget, L.P. St. John's Coll., Brixton
Rowcroft, C.J. Southport Modern S.
Rowe, L.H. Bradley High S., Newton Abbot
Rowe, S. Handel Coll., Southamptou
Rowland, H. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Rowse, I.A. Newquay College
Royle, W.E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Rudolph, W. Wilmslow Gram. S.
Rushworth, J.A.
High S., South Shore, Blackpool
Sankey, W.C. Margate Comm. S.
Sargeant, A.P. Commercial Coll., Acton
Sawell, L.W. Private tuition
Sawyer, W. Southport Commercial Coll.
Scamell, L.J. Preston Gram. S., Brighton
Scammell, F. St. Leonards Coll. S.
Schooling, W. Priory Coll., Hornsey
Scott, E.D. Steyne S., Worthing
Scott, G. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Seaton, D.
The School, Wellington Rd., Taunton
Senior, C. New College, Harrogate
Sercombe, B. St. Leonards Coll. S.
Shapland, A.J. Green Park Coll., Bath
Shapley, F. Wilmslow Gram. S.
Sharpley, F.C. The Middle S., Holsworthy
Sharpley, J.T. The Middle S., Holsworthy
Sheldon, R.E. Belper Gram. S.
Shuttle, E.J. Preston Gram. S., Brighton
Silvester, S.
Southdown Coll., Willingdon, Eastbourne
Simpson, A.L. St. Margaret's, Cardiff
Smith, F.L. Brunswick H., Maidstone
Smith, G.E. Southport Modern S.
Smith, H.N. Brunswick H., Maidstone
Smith, M.N. Shoreham Gram. S.
Smith, W.S.P. Tollington Park Coll., N.
Smith, W.T. Comm. S., Stratford-on-Avon
Somerville, J.M.
Hadfield H., St. Leonards-on-Sea
Soubry, E.J. Commercial Coll., Acton
Southall, G. Shoreham Gram. S.
Southwood, H.A. Commercial Coll., Acton
Soutter, J.L. Tollington Park Coll., N.
Soutter, L.J. Tollington Park Coll., N.
Sparkes, A. Commercial Coll., Acton
Sparling, P.S. Linton, Southend-on-Sea
Spenceley, W.S. Tankerton College
Spencer, H.D. Belper Gram. S.
Stainforth, A. Penketh School
Stanislas, L.C.
Broomfield Pk. Coll., New Southgate
Stanton, H.M.A. Barton S., Wisbech
Stanton, R.O.G. Barton S., Wisbech
Steel, S. Grosvenor Coll., Carlisle
Stephens, A.S. Avenue H., Sevenoaks
Stephens, R. Newquay College
Stevens, E.B. Handel Coll., Southampton
Stevens, J.W. Margate Comm. S.
Stevenson, G. Private tuition
Stevenson, S.L. Modern S., Gravesend
Stimson, F.M. Clifton Coll., Harrogate
St. Ledger, J.H. Modern S., Gravesend
Stonier, W.J. Mossley Hall S., Congleton
Storey, J.H. Hillcroft S., Mortimer
Stratford, S.E.C. Caversham H., Caversham
Sully, R.B. Barnet Preparatory S. for Boys
Swan, S.H. Taunton School
Sykes, B. Hutton Gram. S.
Talbot, C.W. Modern S., Gravesend
Tanton, K.F. St. Leonards Coll. S.
Tantum, M.H. Mary Street H., Taunton
Tattam, E.J. Schorne S., North Marston
Taylor, G.E. St. Aubyn's, Woodford Green
Taylor, H. Grosvenor Coll., Carlisle
Tearoe, A.T. Seaford College
Teran, A. Anerley College
Terry, C.D. The College, Weston-super-Mare
Thomas, D.U. St. Aubyn's, Woodford Green
Thomas, M. Hoylake College
Thomas, W.A. Lancaster Coll., W. Norwood
Thompson, W.K. Penketh School
Thornelcy, A.W. Manchester Warehousemeu & Clerks' Orphan S., Cheadle Hulme
Thorneloe, J.E. New Coll., Harrogate
Timmins, J. Belper Gram. S.
Titford, R.J. Priory Coll., Hornsey
Tolputt, S.H. Bedford H., Folkestone
Tomlinson, H.L.
Kilgrimol S., St. Annes-on-Sea
Toomey, W.E.S. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Touzel, F.G.
Oxenford H., St. Lawrence, Jersey
Tozer, C.A. Richmond Hill School
Trenowath, H.T. Croad's S., King's Lynn
Trerise, J.C. Newquay College
Trower, R.F. Seaford College
Trundell, H.V. Gram. S., East Finchley
Tubb, H. Ryde House Comm. S., Ripley
Tuffee, H.W. Modern S., Gravesend
Tugwood, R.E.G. Shoreham Gram. S.
Turner, A. Jersey Modern S., Jersey
Turner, W. Jersey Modern S., Jersey
Veitch, C.L. Herne Bay College
Venn, R.J. Saham College, Watton
Vernon, H.J. High S., Market Drayton
Vincent, J.C. West End S., Jersey
Wade, A.C. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Walker, L. Leighton Hall S., Carnforth
Walker, L.S. Priory Coll., Hornsey
Ward, J.S. Private tuition
Ward, M.S. Weymouth Comm. S.
Watkins, G. Steyne S., Worthing
Watkinson, D.J.G.
Arlington Park Coll., Chiswick
Webb, R.L. Shoreham Gram. S.
Webb, W. Southport Commercial Coll.
Webber, C. South Molton Upper S.
Webber, C.K. Bradley High S., Newton Abbot
Webling, W.A. Preston Gram. S., Brighton
West, J.H. Boys' Coll. S., Aldershot
Wheatley, S. Southport Commercial Coll.
Wheeler, F. Hillcroft S., Mortimer
Wheller, R.H.A. Ion H., East Molesey
Whitaker, H.L. The Douglas S., Cheltenham
Whitehead, A.W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Whitehead, F.L. Manor H., Clapham Common
Whitford, G.H.W.
Prep. S., Temperance Inst., Dudley
Whitlock, D.K. Handel Coll., Southampton
Whitlock, L.J. The Middle S., Holsworthy
Whittaker, R.G. Commercial Coll., Acton
Whitting, P.A.
The College, Weston-super-Marc
Wilby, A.H. New Coll., Harrogate
Williams, F.E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Williams, J.H. Cothouse S., St. Just
Windsor, L.W. Barry Secondary & Comm. S.
Wood, H.L. Avenue H., Sevenoaks
Woods, A. Hoylake College
Wright, A.L. Modern S., Gravesend
Wright, S.J. Mary Street H., Taunton
Wyatt, K.S. Manor H., Clapham Common
Wycherley, R. High S., Market Drayton
Yates, H. Barton S., Wisbech
Yates, J. Barton S., Wisbech
Yates, L.G. Comm. S., Stratford-on-Avon

GIRLS.

Abbott, V. Oxford H., St. Leonards-on-Sea
Abrahams, M. Southend College
Allan, I.A. Brentwood, Southport
Allsopp, A. Orton Coll., Coleshill
Alright, F.
St. Michael's Avenue S., Northampton
Anderson, M.V. Alexandra Coll., Shirley
Andrew, P. Brentwood, Southport
Aplin, E.B. Girls' S., Staplehay
Arkinstall, A.E.
Beech Tree H., Market Drayton
Aspinwall, E.M. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Astell, I.S. Crouch End High S., Hornsey
Baker, K.J.L. Hockley Ladies' S.
Baker, R.K. English High S., Constantinople
Barden, S.J. Hope Lodge S., Bexley Heath
Barker A.I. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Barnes, C.M.
St. Michael's Avenue S., Northampton
Baron, R.E.A.E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bates, A.M.
Girls' Prep. S., Temperance Inst., Dudley
Batley, B.V. Steyne S., Worthing
Beale, M.E.S.
Royal Masonic Inst., Clapham Junction
Bedford, K.M. Ladies' S., The Close, Brighton
Benbow, H.F. Wembley High S.
Bennett, J. Margate Ladies' Coll.
Bertenshaw, D.T. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Bevan, C.M. Finnart S., Newquay
Bevan, E.E. Wiltshire Road S., Brixton
Bevan, O.G. Finnart S., Newquay
Beveridge, M. Crouch End High S., Hornsey
Bicknell, F.R. Heath Dene, Southend-on-Sea
Billham, E.M. Hill Croft S., Bentham
Binns, M. Highfield School, Croydon
Birch, R.M. Teddington College
Blackler, P.M.C. York House, Swanley
Blanchard, G.A.E. Teddington College
Blumsom, M.
Licensed Victuallers' Girls' S., S.E.
Bonning, D. Girls' High S., Taunton
Booth, H.G.M. Olton Coll. for Girls
Born, W.J. Winwick, S. Woodford
Botting, M.L. Raglan H., Brighton
Bourne, E.A. Beech Tree H., Market Drayton
Briggs, M.T. Girtonville Coll., Aintree
Brock, D.M. The Limes, Buckhurst Hill
Brock, E.
Royal Masonic Inst., Clapham Junction
Brown, G. Chichester H., Mortimer
Brown, L.E. Addiscombe H., Margate
Brown, M.M.
Saxenholme S., Birkdale, Southport
Bruce, L.S.P.
Carisbrooke Coll., Walthamstow
Bryan, K.M. Oakover Girls' S., Burnham
Burgess, W.G.M. The Studio, Streatham
Burgon, D.V. Birkdale Ladies' Coll.
Burnett, L.F. Ryde H. Comm. S., Ripley
Burr, N.A. Froebel H., Worthing
Butler, K.B. Slieu Chiarn S., Northampton
Buzaglo, A. Loreto Conv., St. Francis Xavier's, Gibraltar
Calf, I.G. Alwyne Coll., Canonbury
Campbell, E.C. Winwick, S. Woodford
Cannell, E.V.
Royal Masonic Inst., Clapham Junction
Carrivick, M.M.
Conv. of the Holy Trinity, Newquay
Chalmers, P.I.
Bestreben High S., Brondesbury
Chance, N.M. Harley H., Hereford
Chapman, D.L. Alverton S. for Girls, Penzance
Charlton, W.
Westboro' High S., Newcastle-on-T.
Chatterton, A. Springfield S., Stockport
Cheeseman, L. Oakover Girls' S., Burnham
Churley, M.A.
Clark's College High S., Tufnell Pk., N.
Clare, K.M. Oakover Girls' S., Burnham
Clark, G. Highfield S., Croydon
Clark, M.A. Castle Hall S., Northampton
Clarke, D.G.
St. Michael's Avenue S., Northampton
Clayson, P.M. Crouch End High S., Hornsey
Cleator, E. Milton Lodge S., Fleetwood
Coe, K.F. Raglan H., Brighton
Cohen, M.L. The Limes, Buckhurst Hill
Coldrey, M.G. Crouch End High S., Hornsey
Cole, E.M. Hillside Modern S., Wealdstone
Colles, L. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Collins, F. Highfield S., Croydon
Cooper, E.P. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Cooper, S.M. St. Catherine's S., New Cross
Coote, M.M. Glenarm Coll., Ilford
Coote, P.A. Glenarm Coll., Ilford
Crane, D.M. Harley H., Hereford
Crask, G.M.
St. Michael's Avenue S., Northampton
Crome, E.M. Private tuition
Cross, A.I. Alverton S. for Girls, Penzance
Crossley, E. Springfield S., Stockport
Cumberbatch, T.M.
English High S., Constantinople
Dakin, M. St. Anne's Intermediate S., Hanwell
Dale, N.W. Addiscombe H., Margate
Dales, K. Private tuition
Dampier, G.D. Moseley High S. for Girls
Daniel, M.I. Private tuition
Davies, D.L. Steyne S., Worthing
Davies, H. Barry Secondary and Comm. S.
Davies, N.E.E.
St. Margaret's High S., Leigh-on-Sea
Dell, D.H. Crouch End High S., Hornsey
Dennis, E.C. Alexandra Coll., Westcliff-on-Sea
Derbyshire, G.M.
Alverton S. for Girls, Penzance
Derbyshire, W. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Deslands, M.P.
Clark's College High S., Tufnell Pk., N.
Develin, G.
St. Anne's High S., Westcliff-on-Sea
Dewhurst, E. Manchester Warehousemen & Clerks' Orphan S., Cheadle Hulme
Dexter, D.M. Havelock H., Southsea
Dickson, M.P. The Middle S., Holsworthy
Dingley, A.M.V. Moseley High S. for Girls
Dodds, G.M. Western H., Nottingham
Dove, A. Braunstone H., Newport, I.W.
Dove, A.E. Gosberton Hall Coll., nr. Spalding
Downes, P. St. Hilda's, Beltinge, Herne Bay
Dunk, W.E. Crouch End High S., Hornsey
DuTot, O. Vauxhall S., St. Heliers, Jersey
Duxson, A.M.
Carisbrooke Coll., Walthamstow
Eastley, E.M. Private tuition
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CONTENTS.

	Page
Leader: A Greek Protectionist	103
Notes	104
University College appeal for new Chemical Laboratories—International Exchange of Students—N.U.T. Warning against the risks of entering the Teaching Profession—Execrable Handwriting—The value of the Private School—Local Authorities and Private Schools—The late Rektor K. E. Palmgren, of Sto kholm.	
Summary of the Month	106
Universities and Colleges	108
Oxford—Cambridge—London—Durham—Reading—Glasgow—Paris—McGill—Bloemfontein—Queensland.	
The Educational Ladder	110
Cross-fertilization in Schools: Address to the College of Preceptors by Mr. J. Lewis Paton, M.A., Manchester Grammar School	110
The College of Preceptors:	
Meeting of the Council	114
Teachers' Diploma Examination, Christmas, 1909: Pass List	121
Certificate Examination, Christmas, 1909: Colonial and Foreign Class Lists	123
Current Events	117
Fixtures — Honours — Endowments and Benefactions — Scholarships and Prizes — Appointments and Vacancies — Literary — General.	
School Children under Six	125
Points in University Administration: Professorships and Scholarships	126
Greek in Modern Life	126
Reviews	126
The Cambridge History of English Literature: Vol. IV, Prose and Poetry, Sir Thomas North to Michael Drayton—The Teacher's Handbook of Psychology (Sully).	
General Notices	128
First Glances	130
Mathematics	132

The Educational Times.

A Greek Protectionist.

The Greek question is always with us, and, as with the question of Home Rule or Church schools, there seems no prospect of reconcilement or compromise between the opposing hosts—those who look on Greek as the skeleton at the feast and those who regard it as the palladium of the academic State. At the two older Universities the opponents of compulsory Greek have been routed time after time, and the decisive vote in Congregation of 1904 would seem, in Oxford at least, to have laid the spectre for this generation. But a new champion of the Modernists arose, and the Chancellor of Oxford last year, in his famous "Red Letter," invited the University to abandon compulsory Greek in Responsions, and backed his invitation by the inspired prediction that only by accepting this and other democratic reforms could the University escape the terrors of a Royal Commission. Signs have not been wanting that the Oxford authorities were prepared to capitulate at their Chancellor's bidding. But since then a David has appeared who bids defiance to the Philistines and their new champion, and calls on Oxford to remain true to its ancient traditions. In a brilliant pamphlet ("How to save Greek, and other Paradoxes of Oxford Reform"), Mr. T. C. Snow, late Fellow of St. John's College, Oxford, not only rejects his Chancellor's counsel as the betrayal of a sacred trust and a surrender to unenlightened popular clamour, but defends Greek in the interest, not of the old oligarchy of learning, but of the new democracy.

In few of the schools whose pupils are examined by the College of Preceptors is Greek taught at all, and the controversy does not directly concern its members. We have no intention of reviewing the "stricken field," as Lord Curzon aptly calls it, or of inflicting on our readers a summary of the familiar arguments for and against Greek. But underlying this domestic quarrel there are wider issues involved. The points raised in Mr. Snow's pamphlet concern the first principles of language teaching, and his proposed reforms would, if adopted, revolutionize the curriculum, not only of the Universities, but of every secondary school in the kingdom. In a word, Mr. Snow would have us abandon all composition in a foreign tongue. Latin verse, he tells us, is gone, and Latin prose, another relic of medievalism, must follow it "into a limbo large and broad, since called the Paradise of Fools." Greek and Latin must be studied with the sole object of understanding, not of imitating or reproducing. *Propria quae maribus* will go by the board, and "*Amo, amas*, I love a lass," will give us all that is needed for conjugations. In his New Republic no boy will be plucked for writing "descensit de summa monte"; if he can construe "descendit de summo monte" and name the mountain, he will satisfy the examiner. This reformed method of language teaching would apply equally to French and German except for one not unimportant qualification. No one in after-life will ever be called upon to write Latin prose, whereas the ability to write a French or German letter is a useful accomplishment and may to some prove a valuable commercial asset.

Head masters of the old school will be staggered or scandalized by Mr. Snow's iconoclastic proposal, and protest that he is laying hands on the Ark of the Covenant. One of the last official acts of the late Archbishop Temple was to preside over a meeting of governors called to elect a head master for one of our great public schools. The one question that Dr. Temple put to each of the candidates interviewed was: "What importance do you attach to Latin prose, and how would you teach it?" In the recently issued report of the Classical Association on the Latin curriculum for pupils between the ages of twelve and sixteen, the Committee are at one with Mr. Snow in desiring to reduce grammar to a minimum and in insisting that the matter of the books read shall be studied concurrently with the language, but they insist no less strongly that, at every stage, composition shall form an integral part of the teaching.

It may seem presumptuous for a layman to arbitrate between contending doctors, yet an onlooker may sometimes perceive obvious features that the smoke of the battle hides from both of the contending forces. Mr. Snow is undoubtedly right in his contention that the prerogative value of Latin prose as a mental gymnastic has been absurdly exaggerated. If difficulty is the test applied, French prose

is quite as hard to write—a fact that Mr. G. G. Coulton conclusively demonstrated in his "Public Schools and Public Needs." But, if it is regarded not as an end in itself but as a means, there is a consensus of opinion both among classical and modern language teachers that composition, both oral and written, is an indispensable instrument for gaining entrance into a foreign language. We may add that those who have had most experience of examinations testify that the simple Latin prose required in Responsions is by far the most efficient test of a candidate's proficiency in the rudiments of Latin.

If this is the corner-stone, we fear that the magnificent structure that Mr. Snow rears—an Oxford where every man, whatever his Schools, will have read in the original and remember the choicest portions of Herodotus and Plato, of Homer and Sophocles—dissolves like an unsubstantial pageant. We have no belief in the efficacy of the grammarless Greek that he advocates. "When you have read a very little of a literature in the original, that little has a wonderful effect in quickening your apprehension of the part that you read in translation." With the man of letters who has what the Germans call a feeling for language that may be so, but with a Modern Side on whom Mr. Snow would impose Greek we doubt whether such superficial knowledge of the language would make any perceptible difference, and we are convinced that this subtle and evanescent aroma would be too dearly purchased.

No one now seriously defends the beggarly elements that at present pass for "Greek" at Oxford and Cambridge, and, if the alternative lay between this and Mr. Snow's scheme, we should have no hesitation in choosing the latter; but surely there is a more excellent way. We maintain that all that Mr. Snow and the enlightened Hellenists desiderate can be given through the medium of translations, and that to impose on all students entering the older Universities a knowledge, however perfunctory, of four foreign languages (Mr. Snow recognizes the claims of German) is an intolerable burden and would mean for schools a lopsided and unnatural curriculum. Rightly or wrongly, public opinion prefers Latin to Greek, and insists on Latin as one factor of a liberal education. While this opinion prevails, let us insist on a genuine knowledge of Latin—something more than the cramming-up of one or two set books—and not lower the standard of Latin, as we inevitably must, in order to give our pupils a varnish of Greek. Let them read, mark, learn, and inwardly digest Worsley's "Odyssey," Gilbert Murray's "Euripides," Jowett's "Apology" and "Republic" of Plato, and they will have imbibed the living spirit of Greece, though they may not know the Greek alphabet.

NOTES.

University appeals for funds are getting to be monotonous. The frequency and the magnitude of them ought to suggest the intolerable strain that the advanced conceptions of academic duty are placing upon the teachers. The University of London—or at any rate, University College—made a large general appeal a few years ago; and, if anything came of it, we shall be very glad, but we do not remember any tangible result. There still remains at least one Faculty where the total endowment would form about half a decent salary for a single professor. Now a fresh appeal is made for some £70,000 to find a site and to erect buildings for new chemical laboratories. It is floated out on the achievements and the reputation of Sir William Ramsay, whose back is broad enough to bear it, certainly; but the argument signalizes the dense inappreciation of the British —or should we say the London?—public of wealthy citizens. Sir Henry Roscoe, who is Chairman of the Fund, recently told how, in the early days of Owens College, he was gloomily smoking a pre-lecture pipe one night when a tatterdemalion came along and inquired whether this was the Tramps' Refuge. "No," he replied, "but it may be so in a few weeks' time" The chemistry department is not, and, of course, it ought not to be, so bad as that. "Dalton," the *Pall Mall Gazette* recalls, "revolutionized the chemistry of heat with a tumbler of water and a kitchen poker. Hughes brought many wonders of electricity to light with a tumbler, a matchbox, and a few sticks of sealing-wax. Scheele's discovery of oxygen was made at the back of his apothecary's shop; and when Liebig started his great researches, there was no laboratory in the whole of Germany. But Germany has changed all that, and she now endows her science schools with apparatus so lavish and complete as to put us to shame." Yes, that is the real German invasion; and the price of a Dreadnought would be soundly applicable to meet it. We hope that Sir William Ramsay will be promptly provided with ample laboratories, and, what is more, with ample means for carrying out his work in them. And perhaps it may by and by dawn upon the University and the wealthy public that there are other departments of some importance that fail to die only because they have always been accustomed to starve.

The movement for the International Interchange of Students appears to be going ahead like a house on fire. The Hon. Secretary has been carrying the fiery cross through the country, evoking enthusiasm and actually moving the students to start subscription lists for scholarships. Each travelling scholarship only amounts to a modest £115, which has been precisely calculated as the sum necessary for the student traveller's inclusive expenses on the grand tour. The tour is to be personally conducted "by one who knows both Canada and America, and who has personally examined into the details included in the programme drawn up by the Committee." The itinerary, says the *Newcastle Chronicle*, "will include the most suitable places for the study of the various activities of the countries visited — educational, governmental, commercial, industrial, and social." But really, is not all such information readily available in the library of the student's University, or in some public library within a stone-cast? However that may be, consider the practical side of the matter. "For two days, for example," continues our contemporary, "he will, with shirt-sleeves turned up and scanty clothing generally, take part in the ingathering of the corn on a Michigan farm. He will accompany an immigrant party through the process of debarcation

and examination, for the time being, as an immigrant. Such a method will do far more, it is claimed, to give the traveller a vital knowledge of the conditions and methods which exist than any other can possibly do." Well, supposing the student has not imagination enough to realize all such things adequately without going through the process in person, what will he, after all, bring away with him? He is not going to stay on the Michigan farm; is he going to work permanently on any other farm? and, if so, what will be the value of his two days' Michigan experience? Travelling anywhere opens the eyes of any man that possesses such organs, and is, or ought to be, valuable in a general way. And if there are people that consider this sort of travel worth the money, who shall suggest that they are not doing well to contribute to the scholarships? But the particular advantages set forth do not carry any very lively conviction.

"N.U.T. Leaflet 1, 1910," is a significant document. It is "a warning to parents," setting forth the "risks of entering the teaching profession." It advises parents, before consenting to let a boy or a girl become a teacher, to consider carefully a series of ten facts. These facts represent the successive steps of preparation, the attendant expenses, the possible grounds of disqualification at one stage or another, and the eventual chances of unemployment or of inadequately rewarding employment:

> Students of good character, when highly trained at considerable expense to their parents as well as to the rate-payer and tax-payer, are unable to find employment, even at low salaries, as the following figures illustrate:—4,384 teachers left the training colleges in July, 1908; three months later at least 1,226 were without employment, and twelve months later 259 were known to be still without employment. Of 4,836 students who left the training colleges in July, 1909, 1,528 were still without employment in October, 1909.

They are liable to be penalized if they go into another line of work, and they are kept out of their own profession by the employment of "young persons over the age of eighteen, with no educational qualifications," at a salary "often less than that given to a good domestic servant." The majority that succeed in surmounting all the difficulties in their path and become certificated teachers "will always have to remain assistants at inadequate salaries." It needed no great foresight to anticipate some such manifesto as this, and it is well to have the question brought to an open issue. If the schools were adequately officered, would there be any unemployment left? The adequacy of salaries is not so simple a problem as it looks. But the money difficulty lies very near the root of all the trouble.

When the *Times* devotes a long leader to such a humble accomplishment as "Handwriting," one may infer that "there's matter in't." The occasion was a declaration by Mr. Huth Jackson at a meeting of the Institute of Bankers: "he must frankly say that he thought that the standard of the young men of the present day in the matter of handwriting was not so high as it used to be, and this was, curiously enough, more marked in the case of those who had been educated in our great public schools than in the case of others who had not the advantages of a public-school education." The public schools may fight the matter out with Mr. Jackson; and it will not do, as has been suggested, to pass on the blame to the parents. Nor will Hamlet's excuse serve:

> I once did hold it, as our statists do,
> A baseness to write fair, and labour'd much
> How to forget that learning.

Apparently Hamlet had learned, and had deliberately followed a misleading model to unlearn; we suspect Mr. Jackson's young men have never learned, though, when they come to him, it would do them "yeoman's service." As the *Times* says, "why should these things be?" "Apparently," it answers, "because our schoolmasters hold, with Dogberry, that to write comes by nature, and that it does not much matter whether educated men and women write well or ill, legibly or illegibly." Well, "it does matter a great deal." We do not inquire whether bad writing means "arrogance or carelessness": enough that writing that is not clear is an intolerable nuisance. There is needed but the slightest effort of attention and firmness on the part of teachers to remedy the mischief.

In that very interesting book, Mr. H. Brian Binns's "Century of Education, 1808–1908," there is an appendix on secondary education, by Mr. Sidney Webb, which contains two frank confessions, all the more noticeable as coming from one whose educational activities and interests are almost entirely of a municipal character. Mr. Webb says that no "national system of education can be built up out of schools of a single undifferentiated type, however numerous and excellent they may be"; that our individuality is so infinitely varied that, "in matters of social provision as in tailoring, the wholesale supply, when we come more narrowly to scrutinize it, can be nothing better than a series of misfits"; and that the time is now ripe "for the provision of more accurately fitting educational garments." And he indicates the important steps which have already been taken in this direction by the Local Education Authority of London. But a further remark of Mr. Webb's suggests a much readier and more effective means of attaining this end. "It is," he says, "a peculiarity of England—and one which makes our provision of secondary education look misleadingly small — that nearly every writer (the present being no exception) omits from his survey not only the unknown host" of private schools, "but also the hundred or more so-called 'public schools' which form the apex of our system and now contain some thirty thousand boys, and with them their peculiar 'feeders,' the preparatory schools for little boys, containing ten thousand more."

These are wholesome words. Neither public school nor private school alone can cover the ground in a thoroughly effective manner. The public school and the private school have each characteristic merits, characteristic defects. And the merits and defects of the one are not those of the other. There is a saying to be heard in Norway that a due balance of schools, public and private, is best for the welfare of the State. If Mr. Webb will visit some of the better private schools in England, he will find the classes relatively so small and the arrangements so flexible that most of the

children are readily provided with a "graceful fit." And the readiest way of promoting a like flexibility in publicly managed schools is that they should have by their side an equal number of worthy competitors working on freer lines.

And so, while the establishment of a "List of Secondary Schools in England Recognized as Efficient" is to be welcomed, there is just as much chance of the Local Authorities working eagerly for the establishment of such a balance of schools as there is of a large firm setting aside some of its spare capital to put a rival firm in the same city on a more assured footing. There is a large and increasing body of evidence, not only in England but abroad, going to show that Local Authorities in education are using the resources of the community to press ruthlessly out of existence all educational work but their own, even though such work be undeniably excellent. Hence the need arises for the intervention of the State with its broader view of national requirements. It is becoming more and more clear that, if the State in England continues to let its aid to education flow only through the channel of the Local Authority, the result can only be to waste largely our resources and to cramp and cripple our educational development.

There was no word oftener on the late Mr. R. H. Quick's lips than Voltaire's "Every way is good but the tiresome way." And he would carry it out into practice sometimes in school by saying: "Now let the top boy be bottom and the bottom top, and let us see what will happen." Something of a similar kind was often said by Rektor K. E. Palmgren, of Stockholm, whose death on February 7 we have to deplore. "Latin, Greek, French," he would say, "are obligatory in the State school, and singing, Sloyd, and gymnastics are optional; but in this school singing, Sloyd, and gymnastics are obligatory and Latin, Greek, French optional."

Palmgren struck out in so many new directions that he was better known than any other teacher in Sweden (Salomon, of course, always excepted) out of his own country. He started the first co-education school in Sweden in 1876, seven years before Finland followed his example. His Sloyd work was, perhaps, more remarkable than that of any other secondary school in Sweden. His book of English, French, and German songs for use in schools was one of the best of its kind. He did much to lessen the evils of over-pressure in Swedish secondary schools. An account of his improvements in modern language teaching, written by Max Walter in the *Frankfürter Zeitung* on the twenty-fifth anniversary of Palmgren's School, may be seen at the British Museum or in the Board of Education Library. And yet he was the originator of perhaps not one of the reforms he introduced. His merit lay in the keen sense he had of the reforms required, and in his boldness and success in carrying out the hints and suggestions of others. The State was so conscious of these merits as to make substantial grants to his school, absolutely without conditions, when once the school had secured recognition. This is the more remarkable because the State in Sweden has for eighty years had an expensively equipped experimental secondary school of its own.

SUMMARY OF THE MONTH.

Dr. A. D. Waller, late Dean of the Faculty of Science in the University of London, writing in the *Standard* (February 7), says:—

It is during the first ten or fifteen years of his teaching career that the teacher's mental activity is keenest, and that his quality is made apparent. I would, if funds permitted, definitely recognize and encourage the development of power of such a teacher by the allocation to him of a Research Fellowship that should be expected to occupy half his working time, to supply him with half his living wage, and to enable him to bring to the central lecture theatre of the University real additions to knowledge, and to the lecture theatre of his school augmented mastery of the subject he has to teach. I can imagine no condition of life more enviable than that of a keen-brained man or woman during the best ten years of intellectual life from, say, the age of twenty-five to that of thirty-five, in receipt of a salary of £200 for teaching during half the week, and of a fellowship of £200 for "researching" during the other half. I am convinced that under such conditions of life the return in teaching power would repay the outlay in money, and that from among the workers thus supported the exceptional man or woman would be far more likely to emerge than is the case under our present conditions. Quite independently of the interests of the exceptional mind—which, being exceptional, cannot be expected to be of frequent occurrence—it is to the general levelling up influence secured by the encouragement of individuality of thought throughout the teaching personnel that the return of value for value expended would be most certainly secured.

Dr. Glazebrook, the new President of the Association of Technical Institutions, referred (February 11) to the fact that some two hundred thousand children in England and Wales left school under fourteen years of age annually, while a large number of other children, although still at day schools, were engaged in wage-earning occupations which injured their physical development and prevented them from deriving full benefit from such education as they received. The result was a tragic waste of early promise. Through lack of technical training, hundreds of thousands of young people failed to acquire the self-adaptiveness and dexterity in handicraft which would enable them to rise to the higher levels of skilled employment. The time was now ripe to raise through England and Wales the limit at which children could obtain any exemption from attendance at a day school to thirteen years of age. He suggested that at a not distant date Parliament should fix the age of any exemption at fourteen years of age, so far as the great majority of children were concerned.

Speaking at the annual general meeting of the Association (February 17), the President said that the marked feature of the technical school was its evening work. Few among the evening students hoped to reach University standard, nor should their teaching be planned as if that were the main object in view. These fell into two main categories, the adolescents and the workmen. There was room for a large development for both classes. In time the Imperial Technical College would become the Technical University for London, and to that University there must be many avenues of approach. The evening classes of the Polytechnics had no parallel abroad and constituted one factor in our favour which must tell in the international contest of modern industry. The efforts of the evening student who, after a hard day's work, devoted his time over a long number of years studying for a degree were very praiseworthy, but were they wise in his own interests and those of the country? Might it not be possible to devise a scheme by which, if he were really deserving of it, funds were found to enable him to give three years to regular systematic study in a day college of the University?

Dr. Glazebrook advocated a central Technical University for London, a place where students only of proved capacity were admitted, where the staff were free to conduct original investigations, and through these teach their students, where scholars and prizemen from the various technical institutions of the districts were collected, and where the teachers in the Polytechnics and other colleges were freely welcomed to carry out researches. In close connexion with this there would be a number of colleges, day colleges chiefly, organized so as to provide the teaching required for the less advanced stages of the University. The suitable centres needed to be selected with due regard to geographical conditions. Beyond these, again, would come the Polytechnics engaged chiefly in evening classes for the

worker, but each with its one or more departments, organized so as to provide teaching and means for research of the highest character, with its teachers recognized by the University, having a common interest in promoting the welfare of the central body and looking to the Professors as their leaders in the search for truth. He was clear that a scheme for technical education in London must aim at co-ordinating existing effort round a central institution.

In the recent open competition for scholarships at the Universities of Oxford and Cambridge twenty-three London County Council boys gained twenty-five scholarships. Two gained two scholarships each at different colleges. The value of the awards varies from £80 to £30 a year. Eight scholarships were awarded for Mathematics, twelve for Natural Science, two for History, and one for Modern Languages, while in two cases the subjects are not specified. Many of the successful scholars were previously pupils of elementary schools in the Administrative County of London.

The total number of candidates entered for the Cambridge Local Examinations held in December last was 11,549, exclusive of 3,160 candidates examined at colonial centres. In the senior examination 902 boys and 1,092 girls passed, 95 boys and 14 girls being placed in the First Class. Sufficient merit was shown by 487 boys and 200 girls to entitle them to exemption from one or both parts of the Previous Examination. Of the junior candidates, 2,052 boys and 1,383 girls passed, the numbers placed in the First Class being 181 and 26 respectively. In the Preliminary Examination 1412 boys and 908 girls satisfied the examiners.

The annual statement of the operation of the Rhodes scholarship scheme shows that there were in residence at Oxford, during the academic year 1908–9, 179 Rhodes scholars. Of these, 78 were from the colonies, 90 from the United States, and 11 from Germany. At the end of June 33 completed their course, and in October 31 new scholars came into residence. Five were given permission to suspend their scholarships temporarily, while six ex-scholars remain in residence engaged in teaching, research, or special study for examination. The total number of scholars and ex-scholars at the beginning of the new academic year 1909–10 was 178. Of 83 scholars from the United States who completed their course at Oxford, 82 returned to their own country and one accepted work in England. Of 23 Germans, all returned home except one, who had accepted a teaching post in America. Of 78 colonial students, 12 are still engaged in courses of study preparatory to professions. Of the remaining 66, 51 have either returned already or are about to return to their own countries; four are teaching in England, but looking for colonial appointments in the future; one is for the present engaged in parochial work in England, with the view of service ultimately in his own colony; two have gone to colonies other than their own; three have accepted appointments in India; two, business positions in foreign countries; and three have decided to follow their professions in England. It is interesting to note that, of the total number of scholars, while 16 only took a distinctly classical course in the honour schools, 20 took up natural science, and that mathematics, forestry, and anthropology each attracted a few men only. Jurisprudence and history seem to have been the most popular subjects among the scholars.

At the Guildhall, Bath, Principal Griffiths distributed prizes and certificates to pupils of the technical schools. In the course of his address he urged the importance of giving every encouragement to those engaged in scientific research. In calling attention to some of the direct results which had followed scientific research, he pointed out as a curious fact that in no great scientific advance had the sole object of the discovery been pecuniary reward. The discoveries of Humphry Davy and Faraday were due to facilities provided by the Royal Institution, which was founded by a foreigner. Faraday's electrical discoveries had resulted in the employment of two million people and of £285,000,000 capital. Principal Griffiths said he wanted to awake belief in the fact that nothing paid this country better than the encouragement of scientific research, and greater gratitude should be shown those who had advanced the cause of science. It was the business of every one in authority to encourage, promote, and honour scientific research above everything, for the most apparently insignificant discovery might become a most useful instrument for the advancement of civilization.

The recently organized scheme of the Joint Committee of members of the University of London and representatives of labour organizations for the promotion of the higher education of working people came into operation with the first of a series of lectures upon "India," by Mr. S. K. Ratcliffe, Secretary of the Sociological Society and late editor of the Calcutta *Statesman*. Dr. M. J. M. Hill, the Vice-Chancellor of the University, presided, and there was a large attendance. He said his presence in the chair indicated that the Senate of the University was keenly interested in the encouragement of working people to study economic, social, and historical subjects. The Committee had, at present, made but a very small beginning. They had found that it cost the University some £75 to organize a course of lectures for thirty students, and more funds were wanted. He feared that, for the moment, the Royal Commission now sitting had closed the purses of the great City Companies and of the County Council, but those bodies should have no fear about the value of the work which had been embarked upon. Mr. S. K. Ratcliffe then traced the ancient history of India in an interesting lecture, remarking that the India that most of them knew was the India of newspapers, and not by any means the real India. We could never attempt to understand the real India unless we could understand something of the great forces—spiritual and historical—which had built the country up to its present position.

The distribution of prizes and certificates on the results of the twenty-fifth annual competition in the French language and literature conducted by the Société Nationale des Professeurs de Français en Angleterre was made by the Lord Mayor and the Lady Mayoress at Mansion House. M. Cambon, the French Ambassador, and M. E. Ruf, the President of the Société, expressed the gratitude of the members to the Lord Mayor for his support. M. Albert Barrère, Hon. President and Secretary of the Commission des Concours, stated in his report that the competitive examinations of the past year had given very satisfactory results, and the number of candidates had risen to 4,500. In the more important examinations the oral tests had been particularly satisfactory. He regretted that one of the competitions of the Entente Cordiale (Anglo-French Association) had been abandoned, by virtue of a decision of the Council, for the year 1910—namely, that for the *bourses de voyage* of £20 each for University candidates. In the *Concours spécials* the society were able to give one of the *lauréats* a tourist ticket for a prolonged tour in France. This advantage they owed to the generosity of three companies—the Orléans, Nord, and South-Eastern and Chatham Railways. The Lord Mayor, speaking in French, gave the Society a cordial welcome. Addresses were given by Miss Blagrave, of the City of London School for Girls; Colonel A. Graham Thomson, Royal Military Academy, Woolwich; and M. Barlet, who drew attention to the valuable work done in promoting a knowledge of languages by the scheme for the interchange of children between English and French households carried out by the Société d'Echange International des Enfants et des Jeunes Gens. (The prize list will be found elsewhere, under the "Educational Ladder.")

At a meeting of the South Midland Branch of the Association of Teachers in Technical Institutions in the Municipal Technical School, Suffolk Street, Birmingham, Prof. Thomas Turner, of Birmingham University, gave an address on "The Relationship between the University and the Technical School." He said that fortunately, in Birmingham, the relationship between the University and the Technical School was a very cordial one, and they had been able to help each other in many ways. The general scheme was that the University conducted day classes in certain specified subjects; the technical school conducted evening classes not necessarily in the same subjects. The University took special evening lectures, but did not take any systematic evening courses. The technical school did take a certain amount of day work, including courses in subjects which could also be learned at the University. They had a broad distinction that the University had day classes and the technical school had evening classes, and he thought they would feel that educationally that was the ideal system. The general principle was that the technical school should not endeavour to attract by low fees or by other special advantages that class of student who could afford

time and money to attend at the University. On the other hand, the University should not attempt to give cheap or systematic evening courses such as could be got at the technical school. There should be no undue competition. The object of the technical school was to train its own students to the highest possible point, not to prepare students for the University. Prof. Turner went on to advocate the granting of diplomas to students who had passed through an associate course or diploma course at a recognized technical institution; but a University degree, he contended, should be given only to those persons who had actually studied in a University. A good deal could be done if the technical school student really had sufficient pride in himself, and would feel that his own diploma, in his own liue, was even better than a University degree; for a technical school training was far better for certain purposes in life than the ordinary University training. The Birmingham Technical School, if the students really showed a desire to obtain University degrees, should be regarded very much as one of the larger polytechnics in London was regarded in connexion with the London University, and, after a shorter period at the University, a degree should be conferred in the ordinary way.

In the first of a series of lectures in Manchester University on the influence of Germany upon education in England during the last hundred years, Prof. Sadler pointed out that the establishment of charity schools in this country was largely due to Germany, whose influence had touched every grade of education in England, from the kindergarten to the University. Much, though not all, of our methods for the gentle and spontaneous training of children came to us from Germany; and Manchester would never forget that it was in that city that the first English kindergarten society was formed. That society joined the Froebel Society in 1873 in establishiug the International Froebel Society. Compulsory education in German practice and English modern practice had come from the same root, and was really part of the Protestant conviction that the Reformed Church must take over, but in a more precisely intellectual form, the educational duties which throughout the Middle Ages were discharged by the older Church. The idea of compulsion, which in Germany grew apace and spread over the land at a much earlier date, did not become a grave political question in England until the years immediately followiug the Battle of Waterloo.

Prof. Burnet, addressing a meeting of secondary teachers at the University College, Dundee, on "The Place of Language in the Curriculum," said the M.A. degree had ceased to have any definite meaning, and was not now worth anything to any human soul. It was not a qualification for anything, and it was only the combination degree of M.A., B.Sc., that had any real value. It was the opinion of many men of science that the science taught in schools was of very little value as a preparation for higher scientific study. There ought to be a preliminary examination in physical and natural science, and no one should be allowed to study science in the Universities without passing it. Astronomy, for instance, was a subject which might be made far more of in the secondary schools. Dealing with the subject of the value of languages in relation to science teaching, the Professor said it was not essential that the science student should be a Latin scholar, but he should have enough knowledge of the language to prevent his having to memorize unmeaning vocables in a wholly unknown tongue. Moreover, it was impossible to do any original work without a knowledge of French and German. He would rather students came to his class who knew less Greek and a little more French and German. What was distressing to find was that you had a promising pupil who was absolutely debarred from entering on the higher study of the subject by his entire ignorance of German, an ignorance which he had no time to remedy. Schoolmasters would say, of course, that, in an already overburdened time-table, there was no room for both Greek and German. That was so, because the standard required in any subject taken up was so high that it was impossible to take more than a limited number of subjects. From an educational point of view, it was better to take a few subjects and do them well, but what he wanted was to have the pressure of the leaving certificate lightened so that, alongside of the subjects taken up for educational purposes, there should be some recognition of more superficial work done in other subjects, mainly with a utilitarian purpose. Let it be called smattering if they liked, but he thought the officials of the Education Department would do a great service if they devised some means of meeting a clamant necessity.

Dr. Richard Wülker died at Leipzig in his sixty-fifth year. For over thirty years he was Professor of the English Language and Literature in Leipzig University, and Director of the English Seminary. He was the founder of the philological review *Anglia*, and the author of a number of works, well known to students of Old English.

UNIVERSITIES AND COLLEGES.

Oxford. The *Oxford Magazine* gives detailed statistics of the number of undergraduates and Bachelors in residence at each college. It says: "The number of undergraduates and Bachelors in residence has undergone little change since 1909; the increased size of the second and third years is just counterbalanced by the reduced number of Freshmen and by the falling off in the senior years. Our numbers are now just below three thousand, and it seems likely that the average strength of the University will remain in the neighbourhood of this figure for some little time to come. It is interesting to notice how regularly the number of those who come up in any particular year falls off during residence; about 90 per cent. stay for two years, 80 per cent. for three, while only 40 per cent. remain for a fourth year. At present the five largest bodies are Christ Church, New College, Non-Collegiate, Balliol, and Keble; last year the order was Christ Church, New College, Non-Collegiate, St. John's, and Balliol."

(From our own Correspondent.)

Cambridge. By the time these notes see the light the election of a new Sadlerian Professor will have taken place. Universal regret is expressed at the resignation of Prof. Forsyth, and at the causes which have prompted him to retire from University life; but he will doubtless return some day and meet with a warm welcome from the numerous real friends he has made while among us. Rumour points to a large field of competitors for the vacant post: the list includes the names of Mr. Coates (Queens'), Mr. Herman (Trinity), Dr. Hobson (Christ's), and Mr. H. F. Baker (St. John's).

In continuation of a system inaugurated by the Law Professors last year, we have had another lecture from an expert. This time Colonel Edmonds, of the General Staff, gave us a thoroughly practical and withal scientific discourse on "The International Law and Practice of War." Mr. Cranage, Secretary of the Extension Lectures, has also been instrumental in briuging to Cambridge Prof. S. J. Chapman to lecture on "Socialism." A scientific and impartial course of lectures was enthusiastically received by an attentive and delighted audience.

The number of matriculations for the academical year has already reached the unprecedented total of 1,198. If it is allowed to hazard a conjecture, the causes of Cambridge's present popularity lie in the excellence of its professional and technical schools. Medicine and Engineering are well provided for both on the scientific and on the technical side; Science is encouraged, and the old studies, though they do not attract the same number as of old, keep up the high standard of attainment for which the University is renowned. But there is another side. The recent changes in the course for the poll degree have made it possible for the fourth-form boy to come to Cambridge and make a fresh start on professional subjects. He can begin to read Law or Engineering or Chemistry in a manner suitable to his moderate capacity and his still more moderate industry. He can study things and read books which some years ago were reserved for him till his general education was completed. He has abundance of time aud to spare, so that his athletic ambitions suffer no check. We shall turn out fewer scholars in the future, but the difficulty of getting a "blue" will not diminish. The report of the Board of Examinations throws a flood of light on the probable course of the poll men's choice of subjects, and next year's report will confirm the prophecies contained in the present one. Theology in the year had 302 candidates, Law 297, History 180, Engineering 101. The other fourteen specials attracted 234 all told.

A new studentship for research in Bio-Chemistry has been founded iu memory of the late Mr. Benn Wolfe Levy by his friends and family. Nothing but good can come of such benefactions. We could do with fewer professors and more research students.

But this is a heresy for which everybody wants somebody else to be burnt.

The election to the Council of the Senate to fill the place vacated by Prof. Forsyth resulted in the selection of Prof. Stanton of Trinity. Prof. Ridgeway, who fights the wide world and succeeds in making friends of us all, was the rejected candidate.

Mr. Punnett, of Caius, has been chosen to succeed Prof. Bateson in the Chair of Biology. Rumour says that the appointment is a good one, and Cambridge under modern conditions is an excellent place for the study of Mendelism.

The boat has at last been welded into the semblance of a crew, and should be of a fair average type. The hard-bitten veterans of other years have been somewhat unceremoniously ousted, but possibly the selected combination will be good enough to beat Oxford.

Our victory in the Association match was a joy and a surprise: it was thought Oxford was quite as good a side, and events proved that they were. But Cambridge won.

The Schröder Professorship in German will be filled up on March 18. Dr. Breul is naturally supposed to have a good chance of getting the Chair.

The weather has been abominable, but Lenten trials are excellent discipline.

London.

At a meeting of the Council of the London Chamber of Commerce (Incorporated) the following resolution was unanimously agreed to: "That, having regard to the public, educational, and commercial interest in the reorganization of the University of London, it is most desirable that the proceedings of the Royal Commission should be open to the public and be published, and that a respectful intimation to that effect be conveyed without delay to the Commission."

An appeal signed by Sir Henry Roscoe, Chairman of a Special Committee, has been issued for a sum of £70,000 to erect new chemical laboratories at University College. The existing laboratories were built under the direction of the late Prof. Williamson in 1871, but, owing to the increase in the number of students, and in the complexity of the subject itself, these buildings have now become entirely inadequate. In Gower Place, on the north side of the present buildings of the college, a site has been found, with a frontage of about 316 feet and an average depth of 66 feet, which is considered to be suitable in every way for the erection of chemical laboratories. Subscriptions or donations may be sent to the Chairman or to the Treasurer of the new Chemical Laboratories Fund, University College, London.

Durham.

Under the reconstitution of the University, the most important change from the point of view of the students is the admission of undergraduates studying at the Newcastle colleges to the degree of B.A., which has hitherto been confined to those residing in Durham. The only degrees open to Newcastle students have been those in medicine, science, and letters; now admission to the ordinary Arts degree places them on a footing of equality as University students and removes a serious drawback to the attractiveness of the Newcastle colleges in the eyes of the public. A special distinction, however, is retained for Durham graduates in Arts who have pursued the full classical course: they will be entitled to add the words "in Litteris Antiquis" to their degree.

Reading.

The annual reports of the Council and of the Academic Board of University College, Reading, show that the total number of registered students for last session was 1,233, and that the increase in fees and capitation grants amounted to about £3,400. The deficit in the year's revenue of £1,418 has been defrayed by anonymous donations. Including the cost of the British Dairy Institute connected with the College, £56,340 has been spent on the College site in buildings alone, while the purchase of the farm, the erection of new farm buildings, and the equipment of the new College buildings has cost a further sum of £17,000, and there is still a large deficit to be made up. Lady Wantage is completing her gift of Wantage Hall as a hostel for men students by a permanent endowment, while through the generosity of Mr. Alfred Palmer the College will soon possess a hall of residence for women. A large extension of the College library is urgently needed, and Principal Childs has appealed to the friends of the College to provide funds for this purpose. It is hoped that the College will, before very long, become a degree-conferring University.

Glasgow.

Lord Curzon wrote to the Glasgow University authorities postponing his installation as Lord Rector, which was fixed for February 25, owing to political engagements. Arrangements for the ceremony and a series of social entertainments had been practically completed, and as this is the second postponement keen disappointment was expressed. A section of the students declared their intention to boycott the installation when it takes place.

Paris.

Not only is the University of Paris almost as big as that of Edinburgh, but it is just cosmopolitan in regard to its students. They seem to flock there as they did in the Middle Ages, not only from all parts of Europe, but to-day from all the divisions of the world. There are now enrolled in the "Album" 115 students from Great Britain, 107 from the United States, 165 from Egypt, 233 from Rumania, 231 from Germany, 139 from Austria-Hungary, 1,356 from Russia. Other countries represented are Bulgaria, Greece, Canada, Mexico, Panama, Buenos Ayres, Rio de Janeiro, China, and Japan. In the case of the Turks, Hungarians, and Argentinians, these are sent by their own Governments. It is not only Paris, we are told, that is so favoured. Some of the provincial seats of learning have a good percentage of foreign students. Twenty years ago Paris had on her books only 457 students, compared with 3,000 to-day.

McGill.

The Annual Report records numerous donations, including 50,000 dols. from Mr. Robert Reford, as well as 25,000 dols. from Mr. R. B. Angus, 15,000 dols. from Sir George Drummond, 10,000 dols. from Dr. Milton Hersey, 100,000 dols. from Mr. Andrew Carnegie, and 5,000 dols. from Dr. James Douglas. Besides these, there was the subscription of 450,000 dols. given by Lord Strathcona, the Chancellor of the University, as well as 50,000 dols. to be used for endowment purposes. "Apart from buildings" (says the report) "the main requirements of the University is for such endowments as shall enable it, first, to avoid the recurrence of an annual deficit, now amounting to from 40,000 dols. to 50,000 dols., and then, having secured its footing on the ground already won, to march forward to the new conquests to which it is invited by the advance of knowledge in all departments of study and research. College residences, as at present existing in Toronto, are badly needed, and few gifts would be more acceptable to the University at the present time than that of a building to accommodate, say, one hundred students. The cost, including site, need not exceed 200,000 dols. In regard to salaries, it may be reported that a sum equal to Mr. Reford's gift was, towards the end of the session, put at the disposal of the University for a like purpose by Lord Strathcona, as part of a larger donation which will be recorded later."

Bloemfontein.

It is reported that at the beginning of next term a Chair of Pedagogics will be established at Grey University College, Bloemfontein. It is understood that the Government has appointed as lecturer Dr. Knothe, of the Education Department. The course will be open only to students that have passed the intermediate examination of the Cape University or the equivalent, or the higher examination under the legislation passed in the recent session of Parliament. Bursaries will be available to suitable candidates, the object of the Government being to train teachers in the higher branches of the profession for the special needs of the country. There is a persistent demand for capable teachers, and it is hoped by the Government that the scheme outlined will materially assist in supplying that demand.

Queensland.

The Cabinet has decided to institute in the new University twenty Foundation Scholarships, tenable for three years, each carrying free entrance to the University and £26 a year; or, in cases where the student must live away from home, £52 a year. These scholarships will be equally open to all young people without regard to class or creed or sex. There will also be a Foundation Gold Medal, to carry £100 a year, tenable for two years, for the purpose of encouraging original chemical research; a similar prize, tenable for two years, for engineering; a Foundation Travelling

Scholarship of £200 a year for two years. The scholarships will be competed for annually, so that in the third year from starting the University, and thereafter, there will be sixty scholarship students at the University.

THE EDUCATIONAL LADDER.

Aberdeen University.—Jenkyns Prize in Classical Philology: James O. Thomson.—Fullerton, Moir, and Gray Scholarship in Mathematics: F. C. Stephen, M.A.—Fletcher Scholarship in Mathematics, A. W. C. Mitchell, M.A.

Cambridge University.—Burney Prize: J. Gordon Walker, B.A., Jesus, and Alban G. Widgery, B.A., St. Catharine's, equal.—Prince Consort Prize (for historical studies): A. A. Seaton, Pembroke, and G. B. Tatham, Trinity, equal.—Prize of £50 from the Gordon Wigan Fund (for research in chemistry): Hubert S. Tasker, B.A., Emmanuel.—Balfour Studentship: J. C. Fortescue Fryer, Gonville and Caius.—Grants from Balfour Fund: £200, Clive F. Cooper, M.A., Trinity; £40, K. R. Lewin, B.A., Trinity.—Smith's Prizes: First, Geoffrey I. Taylor, B.A., Scholar of Trinity. Second, not awarded.—Isaac Newton Studentship: Selig Brodetsky, B.A., Scholar of Trinity.—Craven Scholarship: H. E. Foster, Trinity.—Porson Scholarship: D. H. Robertson, Trinity.—Chancellor's Medals: not awarded.—Browne's Medals: Greek Ode, J. R. M. Butler, Trinity; Latin Ode, no exercise sent in; Greek and Latin Epigrams, F. W. Hoskins, Trinity.—Yorke Prize: not awarded.

Clare.—Scholarship in Natural Science: J. E. Wilks, Oundle.

Corpus Christi.—Scholarship in History: G. T. B. Harvey, Marlborough.

Jesus.—Exhibition, £30, for Classics: P. J. Richardson, Clifton.

St. John's.—McMahon Law Studentships (£150 a year): L. G. Crauford, B.A., LL.B.: N. S. Subbaras, B.A.

London: Société Nationale des Professeurs de Français en Angleterre.—Sèvres vases given by the President of the French Republic: Hors Concours: Harrow School; Royal Military Academy, Woolwich. Vases—City of London School for Girls; Schools for the Sons of Missionaries. Blackheath. Gold Medals given by the Minister of Public Instruction: Miss O. Joyce Flecker, Ladies' College, Cheltenham; T. E. H. Davies, Charterhouse. Section B.—Medals given by the Alliance Française:—Miss L. M. Carré, Ladies' College, Guernsey: Miss D. E. Liley, Walthamstow Hall, Sevenoaks. Section C.—Medal given by the Alliance Française: Miss C. H. Duché, Ladies' College, Cheltenham. Section D.—Silver Medal given by the French Ambassador: Gentleman Cadet K. J. Martin, Royal Military Academy, Woolwich. Silver Medal given by M. Camille Barrère, French Ambassador at Rome: Gentleman Cadet S. S. Lee, Royal Military Academy, Woolwich. Special Competition.—Medals given by the Alliance Française: Miss F. de la Mare, West Heath School, Ham Common; and E Millington-Drake, Magdalen College, Oxford, formerly of Eton; tourist ticket, E. Millington-Drake. Competition of the Entente-Cordiale (Anglo-French Association) for two *Bourses de Voyage*, value £20 each: Miss H. Gifford, Lady Margaret Hall, Oxford; H. S. Rosen, University College, Nottingham. Competition of the Entente-Cordiale for two *Bourses de Voyage*, value £10 each: Miss G. Parnell, Clapham High School for Girls; F. Dorman Barker, Royal Grammar School, Colchester.

London University.—Mitchell Scholarship: Lionel M. Swan, London School of Economics.

Passed in Pedagogy: John I. Bulley, B.A., King's College; W. E. Callister, B.Sc. Vict., private tuition; David Williams, M.A., B.Sc. Econ., private study; F. W. Drew, B.A. Wales, private study; G. B. Ellis, M.A. Liv., private study; Edith Alice Ford, B.A., Maria Grey Training College and private study; W. H. Gilby, B.Sc., Westminster Training College and private study; E. H. Magson, B.Sc. Birm., Westminster Training College; Letitia G. Murphy, B.A., King's College and private study; * Harold E. Ridsdale, B.A. Oxon., private study; M. K. Scholes, B.A. Vict., private study; *† Louisa Story, B.A., private study; E. R. Thomas, B.Sc. Wales, private study; K. J. Thompson, B.Sc., private study; * G. H. Thomson, M.Sc. Dunelm., private study; Alice Ethel Tilley, private study; Arthur M. Walmsley, B.A. Oxon., University College and private study.

* Excelled in the practical examination. † Excelled in the written examination.

Oxford University.—Certificate in Regional Geography: Jessie McWean, B.A. Vict., Cherwell Hall, with distinction; Charlotte A. Simpson, Society of Oxford Home Students; Alan Tomlinson, B.A., Worcester College.—Arnold Essay: not awarded.—Vinerian Law Scholarship: Millard Fillmore Woodrow, B.A., Christ Church.

Satisfied the examiners in the Theory, History, and Practice of Education:—W. S. Armour, B.A., Jesus College, Oxford; C. W. Bailey, M.A., Trinity College, Dublin; Louise C. Brew, M.A., Liverpool University; Katharine S. E. Haslam, Girton College; Annette B. Pearce, London University; Grace C. Pollard, B.A., Newnham College; Edith J. Prebble, Royal Holloway College. Worthy of distinction: H. C. Barnard, B.A., Brasenose College, Oxford.

Jesus.—Exhibition: F. L. Parker, commoner of the College.

CROSS-FERTILIZATION IN SCHOOLS.

At the Evening Meeting of the members of the College of Preceptors on Wednesday, February 16, Prof. J. W. Adamson in the chair, J. L. Paton, Esq., M.A., read a paper on the above subject. He said:

It is with schools as with orchids: constant inbreeding tends to degeneracy. However opulent or favoured the school, it is at its own peril that it attempts to live to itself. If we inquire whence spring the poverty and inadequacy, the negligences and ignorances of our English schools, it is here we may trace the source, and this at both ends of the scale. On the one hand, we have our boasted public schools. They are shut off from all contact with any but the moneyed classes; their scholarship system, which was designed to counteract this danger, has served in practice merely to emphasize it. They are shut off from all contact with foreign schools—even the foreign teacher is now tabooed. They are shut off, too, from contact with schools of other grade even in our own country. They are fed from preparatory schools, which are specialized to meet their needs; they have a separate conference of their own; they have no sort of correlation and own no sort of allegiance except to the two older Universities. Into the public-school boy one fixed idea is instilled from the first: that his school is far and away the best school in England. It is part of his school patriotism to maintain this against all comers as the fundamental principle of all educational discussion. And this belief is so strongly implanted in his central sensorium that it never strikes him as being worth while even to get to know any other school than his own. The citizenship of Eton, of Harrow, or Rugby is so persistent that it is only by a special providence or special effort that any other citizenship of later life, whether it be of London or Liverpool or Manchester, establishes its hold upon him as a matter of real obligation.

The same inbreeding is largely seen in the staffing. The public schools are staffed by public-school boys. The successful scholar goes to Oxford or Cambridge. There he is thrown perforce to some extent into touch with other modes of thought and the currents of a wider life. But even at the University he carefully protects himself as much as possible, by choice of college, from any contamination with the products of plebeian education. On going up, he finds himself at once in a circle of congenial friends, all hailing from "the one and only school"—a circle perhaps a hundred strong, which maintains unimpaired at college the cult of the school citizenship and makes it unnecessary to supplement friendship to any serious extent from outside the charmed ring. If he elects for teaching, then, supposing he gets his First or his Blue, preferably the latter, he has a very good chance of getting back to his old school and on the staff lives its intense life over again—even his holidays are organized for him by Dr. Lunn in association with other public-school masters, and, instead of going to Toynbee Hall or an East End settlement to broaden his mind, he goes to Switzerland to elongate his conversation, and that along with other men of his own superior social standing and limited educational sphere. In fact, he never gets away from his Alma Mater's apron strings. The Alma Mater who receives him at twelve fosters him in her bosom all his life (except for the short break at the University), and at last commends him, after his threescore years and ten, to the bosom of that other Alma Mater who receives us all at last.

So much of this is right in feeling that one hesitates to criticize: it is right that a boy should believe in his school as the crack school, right that he should cling to his friends, right that he should consider it an honour above all other honours to be on the staff of the one school in England which stands in his eyes above all others and is enthroned above all others in his heart. He cannot be blamed if, having tasted old wine, he does not straightway prefer new. It was the thing in my day—it was, it is, and therefore it shall be. And yet it is beyond question to this source that we must trace that unreceptivity, that self-complacent stagnation of our public schools, that perfect contentedness to remain for ever what they are now, against which the criticism of the nation directs itself—sometimes according to knowledge and sometimes not according to knowledge, but always alike in vain. It is not possible to blame any individual—the fault inheres in the system and not in the persons who are the natural and almost inevitable product of the system. But, blame or no blame, the point is that the price has to be paid for this centripetal, isolative tendency of our best schools. English education, as a whole, has suffered because of this intense

enthusiasm on the part of our "governing classes" for Eton, Harrow, Rugby, or schools of that rank, an enthusiasm which has been accompanied by an almost complete indifference as to what becomes of the rest of the English people who cannot afford to educate their sons at the cost of £150 to £200 a year apiece. And the schools themselves suffer from lack of what Matthew Arnold would have called "criticism": they are not inspected, and therefore they have no touch with the life of the State; they are sufficiently rich in endowments and well established in repute to be independent of parental opinion (which, in many cases, is chiefly concentrated on the games, and, in any case, could not be effectively expressed owing to the wide dispersion and incohesiveness of the connexion); they have strong conservative traditions which make them cling to what is old for the sake of its oldness and view all newer subjects and newer methods with dislike because of their newness—in a word, they are out of touch with each other, they are out of touch with the general trend of European education, thought, and practice; they are out of touch with the community that they serve, because they are withal out of touch with "necessity," which, as the Greek poet tells us, is the great power behind the throne of Zeus himself. So much for the upper end of our school system. The public schools, like Moab, have settled on their lees.

Turn to the lower end and one finds in the elementary-school system the same evil of inbreeding at work, tending to produce in the elementary teacher a certain rigidity, intolerance of criticism—"grooviness." But how can one blame him? How can he know his own system and estimate his own work until he has detached himself from it, viewed it from outside, got another standpoint from which to judge? This is just what he has never been able to do. How could he under the system which has hitherto prevailed? He was trained up in the elementary school; at the age of eleven to twelve, being promising, he was selected for a pupil-teacher; he acted as pupil-teacher in the elementary school; he passed his examinations while still at work in elementary schools; he passed into a pupil-teacher college or, if fortunate, into a training college where the atmosphere was still the elementary school; his comrades were from the public elementary schools; they were all looking forward to the public elementary school, and their little life was bounded by that span. He never got outside the cave and the idols of the cave; never had a chance to free himself from the "tanks and buckets of knowledge" which we call text-books—never had a chance to come out under the illimitable dome and wash his hands in the infinite sea.

Now, you will say, fortunately this is past. One of the greatest things that has been done for English education was the issue of new regulations which established bursaries in secondary schools for intending pupil-teachers. True, but one of the weakest and foolishest concessions the Board has made was to defeat their own end by allowing the pupil-teacher bursaries to be held at higher elementary schools.

What we want is for the public elementary-school boy to pass on to the school which shall teach him something of what it means to be a member of a society in which the efficiency and good name of the whole are felt to depend upon the efficiency and honourable conduct of each constituent member, which works in an atmosphere of comradeship and trains character by that best of all training, the responsibilities of leadership—in which each of the several organs draws strength and vigour from the healthy functioning of the rest and all are contributing to the well-being of an organic whole—a society, in fact, in which the education of the complete man becomes possible and real.

Dare I say a word also about the Universities? Is there danger of inbreeding here? Have they, too, in Bacon's phrase, become "cannibals of themselves?"

Well, one great contrast between English Universities and German is this: in England, it is the rarest thing in the world for one man to pass from one University to another, and there seems to be a sinister suspicion attaching to it if he does; but in Germany it is the rule, not the exception. The great dread of the German student is *Einseitigkeit;* the great dread of the English student would seem to be *Vielseitigkeit.* Again, one hesitates to criticize. There is so much that is good and sound about the collegiate system; it has, in fact, just what the German University lacks, and lacking tries to reproduce with its fighting corps and its other boozing fraternities.

But, again, we pay the price for it, and it is a heavy price. It is not only heavy, but it is avoidable. Consider, for instance, what a vast influence it has had upon the intellectual life of Oxford, throwing open the Fellowship competitions. Consider how the best things of Balliol have flowed freely in the irrigation channels thus opened out to her, and how Balliol herself has become greater because she has not lived to herself; but, like Sir Galahad, gave her life in order to find it. What a pity that Oxford did not carry the same principle further. She might, for instance, have saved her Philological school, which has become virtually extinct, for lack of just what Cambridge could have given.

What I should say about my own University is perhaps better suggested than made explicit. But, believe me, there are schools of study at Cambridge which would lose their tendency to grittiness and petrifaction if there were an infusion of generous blood from the Isis; and the University will never realize the fullness of its power until the dividing walls between colleges are—I will not say broken down—but, at any rate, so much lowered that, by the help of God, a man might leap over them.

But this is not what I came here to say, and I do not intend to develop the point. I am here to talk about schools, and I want now to treat specifically the different methods by which cross-fertilization can operate. Our educational revival, of which these lectures are a symptom, owes its origin not to the great English schools, not to the Universities, but partly to necessity, in the shape of foreign competition, and also in no small degree to the interest which English teachers and thinkers have discovered in the school systems of other countries. It looks as if English education was destined to owe as much to Germany as English music. The prime factor in this educational revival is that branch of the Education Department—that intelligence department which was set up by the foresightedness of Mr. Acland. He put Prof. Sadler on the hill-top, and told him to keep a keen look out for whatever good piece of work he could see anywhere being done in the educational field. As Director of Special Inquiries and Reports, he has not only sent out a considerable number of Englishmen with the special object of studying foreign systems, but has given us thereby that best and most effective kind of tacit self-criticism which comes from putting the practice of foreign nations side by side with our own practice—a criticism which, being based on actual examples and results, comes home to a practical nation like the English far more effectively than a criticism based on any speculative theoretical arguments. The good of these special reports does not end with the reading. Many masters find their way during the holidays to the schools of the Continent, to watch the methods of the foreigner in practice, and learn that language of the classroom which is so necessary for the new method of teaching modern languages. I have sat myself in a classroom at the *Musterschule* in Frankfort, where there were six other strangers as well as myself. And nothing, as a rule, can exceed the openness and friendliness of the Germans in giving one all possible facilities for studying their methods, text-books, and system. They may believe in a closed door to their markets, but they believe in an open door to their schools. Even at a time when anti-English feeling was strongest, English teachers were visiting the schools and attending the various holiday courses without the slightest hindrance or unpleasantness.

Out of this has arisen the system of interchange of teachers with France and Germany, an experiment which is not yet as widely known as it should be, and consequently has not yet shaped itself out to its full development, but is already full of promise for the future. The benefit to the school is obvious. Our modern language teaching is practically in the hands of Englishmen. However well equipped, it is most helpful to them to have ready at hand one who can give them a decisive opinion on those subtler questions of idiom and usage of which a foreigner can never be quite sure. It is of great advantage to have opportunities of almost daily conversation with a well educated Frenchman or German. The boys at the head of the school share to the full in both these same advantages, but even to the rank and file it means something to learn by companionship that foreigners are not necessarily "beastly." Over and above this there are more measurable results which accrue from what De Quincey called "congenial inoculation." France can give us something of her incomparable clearness of thought, her grace, incisiveness, and lucidity of expression. Germany, on her part, brings with her into our English educational thought that robust atmosphere which comes from precision of aim, thoroughness of work and organization, careful application of psychological science to the correlation of studies and methods of teaching.

Nor is the bargain one-sided: we, too, have something to give, as our Continental friends would be the first to admit—free and

natural intercourse between masters and boys, the pastoral conception of the schoolmaster's work, the spirit and methods of corporate life, and the unconscious moral training of social life—above all, the idea of education as a thing affecting not only compartments, but the human being as a whole—not mind alone, but body and spirit as well.

Great as these things are, the greatest of all is charity. So far as we can see, it is only in these quiet, undemonstrative ways that one can counteract effectively the poison of international prejudice which threatens to-day the peace of Europe. "I don't want to know him," said Sidney Smith to a friend who offered him a personal introduction to one of his pet aversions; "I don't want to know him. If I knew him I could not dislike him. I never could hate any one I knew." To get to know each other is the only preparation for international brotherhood and peace.

Whether this system of interchanging teachers could be extended to the colonies is a question which is already being mooted. There are special difficulties in the way; but they are not insuperable. This would be, indeed, a "congenial inoculation," and it would mean more than many Empire Leagues and Empire lantern lectures for the fostering of intelligent Imperial patriotism in our schools; for no one can deny that our recent development of Imperial feeling and the sense of Imperial solidarity is not of native growth: it is really the response on the part of the mother country to the spontaneous loyalty of her colonies.

Again, this principle of variety combined with freedom for variation must be carried out within the school itself if it is to be a thriving organism. It seems to me to be endangered by that somewhat doctrinaire policy of "Differentiation of Type," which is advocated by the Education Section of the British Association.

Says one of their representative writers, speaking of a comprehensive system of schools, each of which should have a special part to play in the work of training our future citizens: "Thus, one school might find its special function in training boys for the professions; another might do equally good service by giving its scholars the best possible preparation for the lower walks of business life; a third might supply the general needs of a small country town and the surrounding districts; and so on in other cases. The methods of each school would be determined, not only by the type of future calling for which the majority of its scholars were intended, but also by their intellectual and social antecedents and home environment." This idea of differentiation, if carried out, would be fatal to the higher and broader idea of education. What a boy wants at school is not to meet other boys of the same intellectual and social antecedents and home environment—he wants to be thrown among boys of quite different intellectual and social antecedents and other home environments. Education is not putting a boy in a groove and keeping him in it: it is getting him out of his groove and letting him see something of the largeness and infinite variety of life. What a fate, for instance, for a lad to be consigned to this school of junior bagmen, grimly foreshadowed by the writer I have quoted, in the school which prepares for the lower walks of business life. Can anything be imagined more deadening than such a school and the vista of life which it opens up? How could a lad of any generous mettle realize his highest self in such a groove as that? How could any lad develop views of life that are sane and just and true in such a *milieu* where the be-all and end-all was the bank clerk or commercial traveller? Such a conception of the future development of our educational system is, in the worst sense of the word, pedantic, because it shapes the whole thing from the point of view of the organizer and administrator, while it leaves out of account the boy himself with what boys learn from each other; and what boys learn from each other is a far more important element of their education than what they learn from their masters.

It is for this reason that the English system of having the two sides, classical and modern, in the same school is far preferable to the Continental system of separate schools. I know that we have not adopted the system from any thought-out judgment as to its superior educational advantage. We have arrived at it in our usual English way—because it happened so. But, all the same, it is one of our best educational assets. Consider what talk there is among boys in all the common intercourse of school over their respective modes of life—over meals, on the way home, in the prefects' common room, and in the debating society. It is something like that lively camp of Agricola, described by Tacitus, where the bluejackets mingled with the legionaries and swapped yarns as they shared their rations. The classical boy learns, though probably in hearing of the enemy he would acknowledge nothing of the kind, that in the moderns, too, there is classic thought, strong poetic feeling, a striving for perfection of form, and together with these a sense of the infinite which the classics lack. He learns—indirectly, it is true, but none the less effectively—something about the attitude of the scientific mind towards the universe; that science is not all popular lectures with captivating experiments, and not all "fairy tales," as his Tennyson would have him believe, but science, too, entails strenuous thinking, and in that strenuous thinking lies the great spring and hope of material progress for the race.

The modern side boy, on his part, also learns much. He gathers some notion of the long results of time; he gets some touch with the idealism of Plato; and, if he does not himself enter into the storehouse of the world's best thought he learns, at any rate, to know of its existence; to realize that it does not consist of mere musty useless shibboleths, but is full of actuality and the issues of life; and he sees how it enriches the life of his classical schoolfellows, moulds their taste, and dominates their thinking. This is an educational result which is worth aiming at and worth retaining. Its influence is in both directions a liberalizing influence; it brings even into the school something of the microcosm of the Universities; it knocks windows into the mind in all directions, and conduces to growth and expansion of mind.

The same kind of widening, liberalizing effect is got from the intermixture of different social classes. The greatest disservice we could do to the future professional classes of this country would be to train them up in special schools without any contact with the trade, the great commercial and industrial interests of the country; just as the worst thing for the commercial education of this country would be to set up a special commercial public school, as was advocated by a distinguished head master in the Cambridge Senate House. The only result of such class separation would be that professional men would grow up with the idea that the trade which makes this country great is something vulgar, banausic, and unclean, and the business men would be imbued with the idea that professional life was inextricably associated with social snobbery and pharisaism.

One other danger lies ahead. In our zeal for the organization of education there is no small risk of our crushing out of existence the private school. This would be a serious mistake. It was from a private school that Dr. Arnold learned some of his best ideas; it is private schools which to-day are doing some of the most progressive work; and, from the point of view of national education, we cannot afford to lose an agency which is so free to adjust itself to social needs and to test the fitness for practical purposes of the educational "spring novelties" which are so much with us. In this matter we have laid out before our eyes with exceptional clearness, in Mr. J. S. Thornton's reports, the experience of the four northern countries of Norway, Sweden, Denmark, and Finland—a more excellent way we should do well to follow. Says Mr. Thornton:—

"It can come much closer to the home than the communal school; it has a greater expansive force, and can penetrate to nooks and corners of the land to which neither State school nor municipal school can hope to come; and through its greater freedom (which is, after all, only a relative freedom) it possesses the lion's share of new plans, ideas, and methods which, after due trial, pass into general currency. It is neither public nor private, but a strong blend of both. It is public because it passes a public test and conducts its pupils by graded steps to the common goal to which the State schools are proceeding. It is private because it belongs to a private individual, who has the appointment of his own staff, and can make of his school an ordered, effective unity; and is, in the thousand and one details of school life, tied down much less than usual to a prescribed routine.

"State schools, municipal schools, private schools—they all have striking faults and characteristic merits: faults that can be neutralized or minimized, merits that can be shared or transferred only by the fullest and most constant co-operation—a co-operation which may be found realized in no ordinary degree in the north of Europe." "Variety set in a framework of national organization," says Prof. Sadler, "seems to me the right ideal, and a practicable ideal. The State should aim at encouraging educational freedom, not at any restriction of it. It should recognize and, when needful, aid every kind of efficient and needed school."

What shall we say about religion? When we take the children

of this or that religious denomination, pen them up together apart from all others, and practically bring them up as though people of different religious belief were to be as carefully avoided and religiously segregated as though they had the smallpox infection—what are we doing in effect but breeding bigotry and intolerance as fast as we can? After all, we have to live together afterwards with folk whose religious persuasions differ widely from our own; we have to act together in all sorts of different relationships in life; we ought to begin at school to learn how to do it. As the German proverb puts it, "The tongue often gets bitten by the teeth, but they have to live together all the same." If, at the present moment in England, the tongue is demanding that all the teeth should be extracted, and the teeth are endeavouring to bite out the tongue by the roots and spue it forth—we are just reaping the seed that we have sown in our sectarian schools of the past. Prof. Rein, in his argument against the *Simultanschule*, urges the unity of school spirit, but this unity of school spirit is dearly bought if, in after years, it makes impossible the higher unity of the nation. Religion should be a great binding force. It should link men together, not divide. "He that gathereth not with me scattereth abroad," and it is a grievous pity that a child's first idea of religion should be, "Religion is something which places a gulf between myself and my neighbour." There is too much of that in our life already. School should counteract it, not foster it.

I might go further and discuss the question of combining different nationalities in the same school—Sir Edward Cornwall's scheme of exchanging so many London children for an equal number of children from Paris, and Mr. Choate's idea of exchanging pupils between English and American schools. But for this the time has not yet come. The Rhodes scholars are a first experiment in this direction. An American Society does something similar for women students. All I can say is that the day school in central London, as I know it, is already in itself almost a cosmopolitan institution, for it is the fate of every great commercial centre to become rapidly denationalized. My experience in such a school makes me conscious of its dangers —"cum adventiciis moribus adventicii quoque mores importantur," but it makes me conscious also of its advantages. Jewish boys supply excellent illustrations for Old Testament lessons and scripture. A boy of German extraction gives an admirable lead in pronunciation, and geography lessons are enlivened by the presence of boys who have first-hand knowledge, either of the country under treatment or its products; and not infrequently the boy from America or the colonies, or the lad of foreign birth with his extra dash of liveliness, reacts with salutary effect upon the somewhat stolid and phlegmatic, roast-beef-and-plum-pudding John Bull type of boy.

To carry the thing out fully, I suppose, I ought to treat of the reaction of the sex upon sex; but this would raise the vexed question of co-education. Perhaps I have stirred enough vexed questions for one evening. In any case, there is one which you should hear discussed by those who know it from inside.

I come now to cross-fertilization, not as between individual and individual in school itself, but as between different schools. All English schools suffer isolation the one from the other. Excellence here and there is attained by this or that school, or more frequently by this or that department in a school; but our successes have been just like islands emerging in a lonely waste of waters — quite insufficient to atone for the low level of average performance. The question above all questions for us is how to level up the average—how, by general elevation, to create a firm, solid, and continuous mainland of efficiency in place of the few island peaks of excellence.

Here there are two agencies at work to which we may look with hope—(*a*) associations of teachers. It was the genial spirit of Thring which first felt the need of breaking down the barriers and escaping from the narrowness and the cave idols of the isolated school, or, at any rate, he was the first to act. He founded the Head Masters' Conference, and all sorts of other organizations have followed with the usual English variety, duplicating, and overlapping. The good of these gatherings lies not only and not mainly in the discussions and resolutions of the formal assembly. These are often arid enough. The good lies in the private talks among the members. They give us a chance of getting to know our colleagues, of talking over our common difficulties, and in these informal ways our vague notions become cleared and vitalized. (*b*) His Majesty's Inspector. He, rightly conceived, is the fertilizing bee who flits from flower to flower, culls the pollen dust from one school and transfers it to the receptive stigma of another, who stores up the honey in the common hive of the administration office. When the Inspector realizes his cross-fertilizing function, the exceptional success gained by one method or one teacher soon becomes a gain for all; the knowledge of admirable work done in some exceptional school passes to the authority as a brain, and from the authority passes out again into all the schools which it controls.

Not monotonous, bureaucratic uniformity. By no means that. That would be one stage worse than what we have had in the past. It is bad for any nation; for the English it would be the second death. Our national unity rests on admitted diversity. Saxons and Normans and Danes are we—thoroughbred mongrels, in fact. And education, if it is a living thing, must reflect the essential qualities of our national life. Therefore, as our national life owes its richness of initiative to permitted variety of conviction and of view, and freedom for working out our views in practice, there ought to be a corresponding variety among schools, a variety expressive of those historic traditions which persist among us. What I plead for is (1) freedom of experiment, (2) recognition of successful initiative, (3) rapid diffusion of successful results (the third is the most difficult to secure; for this I see no agency in the field except His Majesty's Inspectors and the educational press). In short, while our nation needs this variety of fruitful and stimulating juxtaposition, it needs also co-operation and willingness on the part of each to learn from and co-operate with others—or, to pack it all into one phrase, a unity in multiplicity; we should be, as the poet puts it, "distinct as the waves, one as the sea." It is the unity which Englishmen find so hard, for no nation is both so heterogeneous and so individualistic as our own.

It is only in this way that individuality, the salt of life, gets its proper chance of development. It was only by knowing ever so many other people that Socrates got to know himself, not by shutting himself up in solitude. I can conceive of nothing so fatal to full and free development of personality as for a man to move in a society seeing spectres of himself in everlasting multiplication moving endlessly around him. "It is not good for us," says Sir Thomas More, "to live entirely with congenial spirits. The vigorous tempers the inert, the passionate is evened with the cool-tempered, the prosaic balances the visionary."

At present, out of touch with each other, we are working in the dark, many of us. Here and there some one hits upon a good thing; admirable work is done in that one isolated school; perhaps one or two others by chance get to hear of it. But it ought not to be so narrowed in, nor ought it to be left to chance, still less ought it to be any man's special nostrum which he works for his own private profit. If teaching is a profession and not a trade, then, as in medicine so in teaching, one teacher's discovery should be at once placed at the disposal of all teachers. We should know the best methods, the best apparatus, the best buildings, the best results of experiments, the best syllabus and curricula, know and have ready access to the best men and women. Any sound bit of work should have free course and be glorified. Even in the fads and nostrums there is a soul of goodness, if we are able observingly to distil it out. With free cross-fertilization none of these would become a trade secret, each would yield up what it had in it of good for the benefit of all and would at once fall into its right place in the system.

The politics of education have naturally absorbed much interest of late. But now the point is to get as much value as we can out of the machine; the case for education reverts from Parliament to the school. Like a piece of machinery entrusted to them for repair, the politicians now hand it back guaranteed in sound working condition to the teaching authorities—the engineers of the profession to whom it properly belongs. In order that we may now get the most out of our machine, in order that we may make the most of ourselves as teachers, the one thing that we want is the means of fulfilling readily, and without undue self-assertion, that desire which is now abroad everywhere and was never so much felt as today—the desire to learn from each other.

The Chairman said he could not quite agree with Mr. Paton in his account of the genesis of our practice of having different sides in schools rather than separate schools. The difference between the English and the French and German systems was not accidental, and in England the organization had followed the lines best suited to the complex social condition of the country.

Mr. Thornton said that his experience in the northern countries of Europe had convinced him that much good might be done by the free interchange of thought and experience among the different sections of the teaching profession. In those countries teachers of all classes mixed with one another in a way which was apparently impossible in England.

The Teachers' Guild had attempted to bridge the gulf between secondary and elementary teachers, and to provide a common platform for all sections. Among secondary teachers he knew of no medium which was more effective for the diffusion of the latest educational theories than the meetings of members of the College of Preceptors. He fully concurred with the lecturer's remarks with regard to the utility of private schools in the English system of education. The private school was needed quite as much for the sake of the public school as for its own sake.

Mr. Holland, referring to the lecturer's quotation from a speech which had been made at a meeting of the British Association, said he was convinced that the idea which underlay that speech was destined to play a great part in the higher education of boys in England. One of the faults of English secondary school education was its indefiniteness, and its consequent failure to fit boys for their life's work. In school, as in other departments of life, specialization must have due play if fruitful results were to be obtained, and he thought the lecturer had overestimated the undesirable consequences that might follow from specialization.

Mr. Eagles thought the question of expense would tend to force specialization in schools. The tendency of the authorities who had the power of the purse was to refuse to allow alternative courses in the same school, and to group together in one school boys taking a particular course.

Mr. Paton having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, on February 19. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage Smith, Mr. Bain, Mr. Barlet, Rev. J. B. Blomfield, Rev. A. W. Boulden, Mr. Brown, Mr. E. A. Butler, Mr. Charles, Mr. Eagles, Mr. Hay, Mr. Holland, Miss Jebb, Mr. Kelland, Mr. Marx, Mr. Milne, Dr. Moody, Mr. Morgan, Mr. Pendlebury, Mr. Pinches, Mr. Rule, Rev. Dr. Scott, Mr. Starbuck, and Mr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported that, in response to an invitation from the Consultative Committee of the Board of Education, the President and Dean of the College had attended a meeting of the Committee on the 17th inst., and had given evidence as to the origin, growth, and development of the College examinations of pupils in schools, the methods on which these examinations are conducted, and the provision made by the College for the examination and inspection of schools.

Diplomas were granted to the successful candidates at the recent Christmas Examination of Teachers (see list, page —.) The Prize for Mathematics was awarded to Mr. J. H. Ferraro, and the prize for Natural Sciences to Mr. W. J. Paynter.

One of the representatives of the College on the Federal Council reported the proceedings at a meeting of the Council which had taken place on February 17.

It was resolved—

> That, inasmuch as it was resolved at the last General Meeting to request the Council still to consider whether "by any methods the work and influence of the College may be increased, and to report to the next half-yearly General Meeting," a circular letter be sent to each member of the College residing in the United Kingdom asking for suggestions in this direction. Further, that such extracts from the Charter be affixed to the circular letter as give full information respecting the direct and indirect objects of the College, and the powers respectively possessed by the College and the Council for carrying them out.

In accordance with a recommendation of the Examination Committee, the Council adopted the following as the syllabuses of requirements in Book-keeping for the Certificate Examinations:—

Second Class [or Junior].

A knowledge of Double-Entry Book-keeping and of ordinary mercantile terms. The Journal and its sub-divisions—Purchases, Sales, and Cash Books—Posting to Ledger—Trial Balance, Profit and Loss Account, and Balance Sheet. Bank and Bills Transactions, Consignment Accounts, &c.

First Class [or Senior].

A more advanced knowledge of the subjects of the Junior syllabus, with the addition of Partnership Accounts, preparation of Trading and Profit and Loss Accounts, Reserve Accounts, and an elementary knowledge of the Accounts (Capital, &c.) of Limited Companies.

The Finance Committee presented a Report recommending—

> (1) That it be referred to the Examination Committee to consider whether there are any special causes which militate against the entry of women for the Diploma Examinations and of girls for the Certificate Examinations. (2) That the Secretary be instructed to issue to all members of the College a circular showing the advantages of membership, together with a letter asking members to bring the advantages under the notice of other teachers; but that the issue of the letter and circular should be deferred until the Council had had an opportunity of considering whether any additional advantages could be offered to members. (3) That the answers to certain of the mathematical papers should be included in the next Calendar. (4) That grants amounting to £52. 10s. should be made from the Benevolent Fund. (5) That the consent of the Council should be given to proposals of the Committee of the Joint Agency for Men Teachers for the amendment of Rule vii of the Agency Prospectus.

The Report was adopted.

A Special Committee was appointed to inquire whether the burden on the funds of the College occasioned by the issue of *The Educational Times* and the Calendar could not be diminished.

Sir Philip Magnus, M.P., was elected President of the Council, and the Rev. Canon Bell, Mr. E. A. Butler, and the Rev. Dr. Scott were elected Vice-Presidents.

Prof. J. Adams was appointed Dean and Dr. Armitage Smith Treasurer of the College.

The Moderators, Revisers, Examiners, and Inspectors were appointed.

The four Standing Committees were appointed, with their respective chairmen.

The following persons were elected members of the College:—

Mr. Dhansukh Harvachram Hora, B.A., Bombay, Male Training College, Baroda.
Mr. F. A. Unwin, 6 Balfour Road, Ilford, Essex.

The following were admitted to the privileges of membership, under Sect. II, cl. 5 of the By-laws:—

Mr. W. Littler, B.Sc. Lond., F.C.P., 32 St. John's Road, Exeter.
Mr. W. J. Luke, L.C.P., 2 Alfred Street, Plymouth.
Mr. F. P. Sexton, A.R.C.Sc., A.C.P., Central Technical Schools, Truro.

The following books had been presented to the Library since the last meeting of the Council:—

Calendar of the Pharmaceutical Society of Great Britain.
Calendar of the University of Wales.
Calendar of the University of Liverpool.
Calendar of the Transvaal University College.
Register of Veterinary Surgeons.

By the Authors.—Oldfield's The Penalty of Death; Sully's Teacher's Handbook of Psychology.

By Mr. H. W. Eve.—Blake Harrold's Practical Précis Writing and Indexing.

By the General Medical Council.—Minutes of the Medical Council, 1909; General Index to the Minutes of the General Medical Council, 1903–1909.

By the Institute of Chemistry.—Official Chemical Appointments, 1910.

By G. Bell & Sons.—Bell's Literature Readers (The Three Midshipmen).

By A. & C. Black.—Black's Supplementary Readers (2 vols.); Geographical Pictures—Lakes (2 packets); von Wyss's The Child's World in Pictures.

By Blackie & Son.—Stories Old and New (8 vols.); Duckworth's Classification and Research in Schools; Hassall's Modern England; Mort's Elementary Practical Geography for Middle Forms; Park's Theuriet's L'Abbé Daniel; Patton's Commercial Correspondence and Office Routine; Stopes's The Story of Plant Life for Young People.

By the Cambridge University Press.—Kirkpatrick's Cervantes' La Ilustre Fregona, and El Licenciado Vidriera.

By Macmillan & Co.—Lownds's First Book of Physics; Roberts's Ruskin's Sesame and Lilies.

By Methuen & Co.—Hey and Rose's Woodwork Class-book; Webb's Systematic Geography of Europe.

By Mills & Boon.—Barrère's De Nerval's La Main Enchantée; Williamson's First Latin Unseen Book, and Second Latin Unseen Book.

By the Oxford University Press.—Select English Classics (Boswell, Gray, &c.); Oxford Plain Texts (Milton's Comus, Minor Poems, and Paradise Lost, Books III–VI); Barlet's Sand's Les Maitres Sonneurs; Bartholomew's School Economic Atlas; Chouville's Histoires Courtes et Longues; Hein's Auswahl Deutscher Prosa der Gegenwart; Mercier's Sand's François le Champi; Robertson's Lamartine's Le Tailleur de Pierres de Saint-Point; Sargeaunt's Pope's Essay on Criticism; T. C. and W. Snow's Thackeray's History of Henry Esmond.

By Alston Rivers.—Reed's Problem Papers for Upper Middle Forms.

By Rivingtons.—Hassall's The Great Rebellion, 1603–1660; Hillard and Botting's Elementary Latin Exercises.

By the University Tutorial Press.—Matriculation Directory, January, 1910; University Correspondent, 1909.

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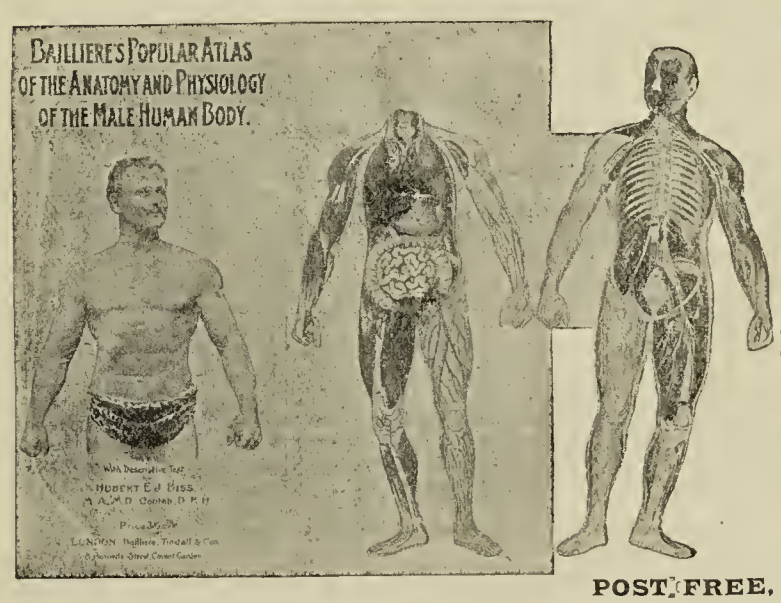

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II. (*Feb.* 17.) *Kinds and Methods of Psychology:* empirical, rational, and scientific: their advantages and defects: psychology hitherto almost entirely of the individual: genetic psychology and its applications to education: collective psychology, with its use of convention, imitation, and other forces: methods—introspection, observation, interpretation, experiment.

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IV. (*March* 3.) *The Functioning of Consciousness:* Education a process of manipulating consciousness: the automatic level as an ideal: the basis of habituation: accommodation and co-ordination: association as a means of organizing the contents of consciousness: mistake of limiting association to mere mental process: convergent and divergent association: forces of complication, fusion and arrest.

V. (*March* 10.) *Epistemology:* the theory of knowledge: the two worlds, the inner and the outer, and their relations: resemblance *versus* correspondence: the phenomenal and the noumenal: the thing-in-itself: nature and function of ideas: apperception: the continuum: the automatic level on the ideational plane: the value of "forgotten knowledge": fact and faculty.

VI. (*March* 17.) *Attention:* fundamental importance to teachers: great confusion in classification: cause of this confusion: the most useful classification for teachers: spontaneous attention at once the beginning and the goal of education: relation of interest to attention: nature and kinds of interest: suggestion and its use in manipulating interest.

VII. (*April* 28.) *The Perceptual Plane:* nature of sensation: "pure sensation": the special senses: "the preferred sense": relation of sensation to perception: possibility of increasing sensation as a natural endowment: accumulation of perceptual material: nature and scope of observation: relation of observation to inference: the zone of inference: the inference point: the gaping point.

VIII. (*May* 5.) *The Conceptual Plane:* the emergence of the general notion: the image, the generalized image, and the concept: the abstract and the concrete, their nature and relations: interplay between them in school work: denotation and connotation: nature of definition, and its use in school work: the logical and the psychological concept: the distinction between the incomplete and the erroneous.

IX. (*May* 12.) *Memory:* physiological basis of memory: fundamental character of memory: not limited to mental processes: muscular memory: memory and personal identity: possibility of improvement of memory as a natural endowment: meaning of the phrase "training the memory": element of purpose in memory: the use of mnemonics in school work: learning by rote: the art of forgetting.

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XII. (*June* 2.) *The Will and Character:* nature of will: relation to emotions in general and to desire in particular: influence of mere knowledge on will: nature and function of motives: fallacy underlying the phrase "the strongest motive": freedom of the will in relation to the teacher's influence as an educator: relation of will to character, and of character to conduct: subjective and objective character: plasticity and rigidity of character.

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CURRENT EVENTS.

Fixtures.

AT the Members' Meeting of the College of Preceptors, on March 16, Prof. J. J. Findlay, M.A., will read a paper on "The Demonstration School: Purpose, Method, Results."

* * *

M. PETILLEAU will address the Société Nationale des Professeurs de Français en Angleterre on "Emile Zola à Londres" at the College of Preceptors, on March 19, at 4 p.m.

* * *

MISS C. E. ISAACSON will lecture on "Wasps, a subject for Nature Study," before the School Nature Study Union, at the College of Preceptors, on March 9, 7.45 p.m.

* * *

AT the Child Study Society, London (90 Buckingham Palace Road, S.W.), Miss M. Cade, Inspector in Domestic Economy, L.C.C., will lecture on "The Development of the Teaching of Domestic Economy in the Training of Girls," March 3, 7.30 p.m.; and Dr. F. H. Hayward, D.Litt., B.Sc., will lecture on "Evening Schools in the light of the Adolescent Problem," on March 17, 7.30 p.m.

Honours.

OXFORD UNIVERSITY has conferred the honorary degree of D.Sc. upon Mr. Philip Herbert Cowell, F.R.S., Chief Assistant, and Mr. Andrew Claude Crommelin, Assistant, at the Royal Observatory, Greenwich, in recognition of their successful labours in the exact determination of the reappearance of Halley's comet.

* * *

OXFORD CONVOCATION has conferred by decree the degree of M.A. upon Surgeon-General A. F. Bradshaw, C.B., Hon. M.A., Worcester College.

* * *

THE University of Durham has conferred the honorary degree of Mus.Doc. upon Principal Hadow, of Armstrong College.

* * *

THE Senatus of Aberdeen University has resolved to confer the following honorary degrees (April):—

D.D.: Rev. W. E. Bromilow, late Wesleyan Methodist missionary in New Guinea, formerly Principal of the Theological Training College of the Methodist Church of Australasia in New Guinea; Rev. Martin Lewis, B.A.; and others.

LL.D.: Hans Driesch, Ph.D. Heidelberg, recently Gifford Lecturer; Sir John George Fraser, M.L.C., Orange River Colony, Bloemfontein; James Mackenzie, M.D. London; James Niven, M.A., M.D., Medical Officer of Health, Manchester; Alexander Ogston, M.D., C.M., Emeritus Professor of Surgery in the University; Hon. Sir Thomas Gordon Walker, K.C.I.E., C.S.I., Acting Lieutenant-Governor of the Punjab; William John Watson, M.A., Rector of the Royal High School, Edinburgh.

* * *

THE Senatus of St. Andrews University has resolved to confer the following honorary degrees (March 30):—

D.D.: Rev. John Burgess, Marrickville, Sydney, Clerk of the General Assembly, Presbyterian Church of Australia, New South Wales; Rev. George Davidson, M.A., formerly Moderator of the South Australian

Church, editor of the *Presbyterian Banner* (South Australia), now minister of Flinders Street Church, Adelaide; Rev. Andrew Miller, M.A., minister of Bluevale Parish Church, Glasgow, President of the Ecclesiological Society of Scotland, formerly Robertson Lecturer, Glasgow University; Rev. P. Cunningham Simpson, M.A., Renfield Church, Glasgow, author of "The Life of Principal Rainy"; Rev. Henry Julian White, late Fellow and Tutor of Merton College, Oxford, now Professor in King's College, London, associated with the Bishop of Salisbury in editing the great critical edition of the Vulgate New Testament: and others.

LL.D.: Sir William Ogilvy-Dalgleish, Bart., of Errol Park, Errol, long associated with University College, Dundee, as a governor of the College and a generous donor; Emeritus Professor Thomas Purdie, B.Sc., Ph.D., LL.D., F.R.S., for twenty-five years Professor of Chemistry in the United College, University of St. Andrews, and a generous benefactor of the University.

* * *

Mr. A. J. Herbertson, M.A., Wadham College, Reader in Geography, Oxford University, has been constituted Professor of Geography so long as he holds the office of Reader.

* * *

Lord Kilbracken of Killegar, M.A., G.C.B. (Sir Arthur Godley), formerly Fellow, has been elected an Honorary Fellow, of Hertford College, Oxford.

* * *

Mr. William Bateson, late Fellow, has been elected an Honorary Fellow, of St. John's College, Cambridge.

Endowments and Benefactions.

Funds have been provided for the establishment of a Wykeham Professorship of Ancient History at Oxford.

* * *

Oxford Convocation has established a Lectureship in Criminal Law and the Law of Evidence (£250 a year).

* * *

Dr. Henry Wilde has given £600 to Oxford University to found an Annual Lecture on Astronomy and Terrestrial Magnetism, in memory of Edmund Halley. Dr. Wilde will himself deliver the Halley Lecture this year.

* * *

The Rhodes Trustees will give £200 a year for five years to Oxford University in aid of the teaching of law, and the Common University Fund will contribute £50 a year for five years to the same object.

* * *

All Souls College, Oxford, has promised £300 towards an annual course of Lectures on Foreign History, and £200 towards a Lectureship in Private International Law during the next three years.

* * *

Dr. F. Sanger, of St. John's College, has presented to the Chinese Department of the Library of Cambridge University over a hundred volumes, including an illustrated edition of the poems of the famous scholar-Emperor K'ang Hsi, with an interleaved translation in Manchu.

* * *

An appeal is made for £70,000 for new chemical laboratories at University College, London (see "Summary").

* * *

The Building and Endowment Fund of Bedford College for Women amounts to £47,700. A further £12,300 is required before the buildings can be begun.

* * *

The debt of about £1,100 on the Vaughan Working Men's College, Leicester, has been paid off by some "friends of the Vaughan family."

* * *

The Transvaal Government has decided to give a first contribution of £100,000 towards the establishment of a Transvaal Agricultural University.

Scholarships and Prizes.

The Council of the Surveyors' Institution have revised their scholarship scheme. They will now give six scholarships—one of £60 and five of £50 a year for three years, tenable at any University. This year the £60 scholarship and one of the £50 scholarships will be open, the rest to follow, two each year. Candidates will be examined in three of the following subjects: Chemistry, Physics, Botany, Geology, Mechanics, Trigonometry.

* * *

Brasenose College, Oxford, offers one open scholarship in Classics, one Hulme Exhibition in Classics, and one scholarship limited to candidates from Harrow School, for competition on March 8. Candidates for classical scholarships and exhibitions at Merton and Brasenose Colleges will be examined at the same time and in the same papers. Candidates to send their names to the Warden of Merton College or the Principal of Brasenose College by March 4.

* * *

Selwyn College, Cambridge, offers entrance scholarships and exhibitions for Mathematics, Classics, Natural Sciences, and History on March 15–17. Particulars from the Master.

* * *

The Edith Pechey Phipson Post-graduate Scholarship, £40, for medical women, in any branch of medical or scientific study, will be awarded at the end of March. Preference to a woman coming from India or going to work in India. Apply to Mrs. E. M. Slater, 33 Chepstow Villas, London, W.

* * *

Framlingham College, Suffolk, offers four entrance scholarships for competition on April 5. Apply to the Head Master or to the Secretary.

Appointments and Vacancies.

The British Association meets at Sheffield on August 31. Prof. T. G. Bonney, Sc.D., LL.D., F.R.S., has been appointed President. The following have been appointed Presidents of the various Sections: Mathematical and Physical Science, E. W. Hobson, Sc.D., F.R.S.; Chemistry, J. E. Stead, F.R.S.; Geology, Prof. A. P. Coleman, M.A., Ph.D.; Zoology, Prof. G. C. Bourne, M.A., D.Sc., F.L.S.; Geography, Prof. A. J. Herbertson, M.A., Ph.D.; Economic Science and Statistics, Sir H. Llewellyn Smith, K.C.B., B.Sc., B.A., F.S.S.; Engineering, Prof. W. E. Dalby, D.Sc., M.Inst.C.E.; Anthropology, W. Crooke, B.A.; Physiology, Prof. A. B. Macallum, Ph.D., D.Sc., F.R.S.; Botany, Prof. J. W. H. Trail, M.A., M.D., F.R.S.; and Educational Science, Principal H. A. Miers, M.A., F.R.S., F.G.S.

* * *

The Slade Professorship of Fine Art at Oxford is vacant by the resignation of Mr. C. J. Holmes, Director of the National Portrait Gallery.

* * *

The Sadlerian Professorship of Pure Mathematics in Cambridge University is vacant through the resignation of Dr. A. R. Forsyth.

* * *

Mr. R. C. Punnett, M.A., Fellow of Gonville and Caius, has been elected Professor of Biology, in succession to Prof. Bateson, resigned.

* * *

The Professorship of Natural Philosophy in the University of Dublin is vacant through the death of Mr. Frederick Purser, M.A., M.R.I.A.

* * *

The Professorship of Botany in Birmingham University

is vacant through the death of Mr. William Hillhouse, M.A., F.L.S.

* * *

Dr. Bernard Bosanquet, recently Professor of Moral Philosophy, St. Andrews, has been appointed Gifford Lecturer in the University of Edinburgh for three years from October, 1911.

* * *

Mr. W. L. Grant, M.A., Beit Assistant Lecturer in Colonial History, Oxford, has been appointed to the new Colonial History Chair in Queen's University, Ottawa. His father was formerly Principal of Queen's University.

* * *

Mr. Alexander Petrie, M.A. Aberd., B.A. Cantab., Assistant Professor of Greek and Lecturer in Greek History in the University of Aberdeen, has been appointed Professor of Classics in the new University of Pietermaritzburg.

* * *

Mr. W. G. Stewart Adams, B.A., Balliol, has been appointed Lecturer on Political Theory and Institutions in Oxford University.

* * *

The new Lectureship in Scottish History in Glasgow University has been offered to Sir Herbert Maxwell; and the new Lectureship in Scottish Literature to Dr. William Wallace, late editor of the *Glasgow Herald*.

* * *

Mr. J. H. Whitehouse has resigned the Wardenship of the Manchester University Settlement on his election as M.P. for Mid Lanark.

* * *

Mr. Jethro Bithell, M.A., Assistant Lecturer in German, Manchester University, has been appointed Lecturer in German in the Birkbeck College, London. He is succeeded by Mr. L. A. Willoughby, B.A. Lond., Ph.D. Vienna, Lektor in English at the Technische Hochschule, Cologne.

* * *

A Lecturer in History, Literature, or both, is required at University College, Nottingham, in October. £150. Particulars and form of application from the Registrar.

* * *

M. P. N. de Puybusque, Licencié ès Lettres, Licencié en Droit, Diplômé de l'Ecole des Sciences Politiques, has been appointed Assistant Lecturer in French Language and Literature in Cardiff University College.

* * *

Miss Dove is about to retire from the Head Mistress-ship of Wycombe Abbey Girls' High School.

* * *

A Head Master is required for Marling School, Stroud, early in September. Age thirty to forty-five; graduate (or equivalent), with five years' experience of secondary teaching. £400 and house. Boarders. Apply to Mr. F. Winterbotham, Solicitor, Stroud, by March 13.

* * *

Mr. R. Dark, County School, Penarth, has been appointed Head Master of the Duke of York's School, Dover.

* * *

Mr. W. B. Hunt, assistant master, has been appointed Head Master, of the Grammar School, Kilburn, N.W.

* * *

Mr. C. J. L. Wagstaff, M.A., Oundle School, has been appointed Head Master of Aske's School, Cricklewood, N.W.

Mr. J. Buckley, Head Master of P.-T. Centre, Wigan, has been appointed Head Master of the Secondary School, Woodhouse.

* * *

Mr. H. E. Long, M.A., Grammar School, Wakefield, has been appointed Head Master of the Secondary School, Sowerby Bridge.

* * *

Mr. G. L. Bradley, M.A. Cantab., Royal Grammar School, Worcester, has been appointed Head Master of the County School, Penzance.

* * *

Mr. J. Valentine, St. George's School, Harpenden, has been appointed Head Master of the County School, Harwich.

* * *

A Head Master is required for the School of Art, Lydney, Gloucestershire. £150, commencing. Particulars from R. Beaumont Plat, Esq., Tin Plate Works, Lydney, Glos.

Literary Items.

Messrs. A. & C. Black will publish presently a volume on "The Teaching of Geography in Elementary Schools," by Prof. R. L. Archer, Mr. W. J. Lewis, B.Sc., and Mr. A. E. Chapman (in collaboration).

* * *

The Oxford University Press announces "A History of English Versification," by Hofrat J. von Schipper. Also a new edition, revised and enlarged, of Dr. Skeat's "Etymological Dictionary of the English Language."

* * *

Messrs. Ralph, Holland, & Co. announce a new "French Composition" by two Parisian Professeurs, MM. Guillotel and Proix; also "A Book of Northern Heroes" and "A Book of Southern Heroes," by Mr. A. J. Dicks, B.A., B.Sc.—reading books in typical European hero-lore for secondary lower forms and elementary upper standards.

* * *

Messrs. Jack are publishing "The Ariel Shakespeare"—a new amply annotated edition in forty-two pocket volumes at a popular price, edited by Prof. H. N. Hudson, LL.D. Six volumes are announced for March.

* * *

The Report of a Joint Committee of the Mathematical Association and the Association of Public-school Science Teachers, with a view to the correlation of mathematical and science teaching, is published by Messrs. George Bell & Sons (6d. net).

* * *

Messrs. Jarrold & Sons offer £100 for a story (50,000 to 75,000 words) either for boys or for girls. Competition open till May 16.

* * *

The National Committee to Promote the Break-up of the Poor Law is publishing a monthly journal, the *Crusade against Destitution* (1d.). It supports and illustrates the Minority Report of the Poor Law Commision.

General.

Mr. Arthur Phillips opened a short season at the Royal Court Theatre with "The Merchant of Venice." Mr. Phillips plays Shylock, and Miss Amy Brandon Thomas is Portia. Other revivals are anticipated.

* * *

The Association of Assistant Masters has grown from 72 members in 1891 to 2,760 members in 1910.

Clough's Correspondence College.

A.C.P. CLASSES.

Remarkable Successes of Clough's Students.

In August **1908** A.C.P. Exam.

THE MOST DISTINGUISHED STUDENT

was Mr. R. A. WRIGHT, a Member of Clough's A.C.P. Class, who obtained Honours in Three Subjects.

35 *Victoria Road, Runcorn,*
November 10*th*, 1908.

Dear Mr. Clough,—Enclosed please find formal receipt for **your cheque of £10,** *kindly awarded as Prize re A.C.P. Examination. I was agreeably surprised to find myself so distinguished, and further surprised to find myself the recipient of your cheque, for I had not dreamt of such success. I received invaluable help from your Classes in the Scholarship Examination, and knew that I could rely on your Classes pulling me through first time, and I have not been disappointed. In fact, I don't know who would be, provided that they worked systematically through your Course. Thanking you, and wishing your Classes every success.*

Yours faithfully, ROBERT A. WRIGHT.

At the above Examination

ALL THE HONOURS IN ENGLISH

were gained by Clough's Students.

In Jan., **1909** A.C.P. Exam.

THE MOST DISTINGUISHED STUDENT

was Miss M. A. CURLING, a Member of Clough's A.C.P. Class, who obtained Honours in Three Subjects.

45 *Brunswick Square, Herne Bay,*
February 6*th*, 1909.

Dear Mr. Clough,—I cannot tell you how pleased and surprised I was to find myself in possession of a **£10 cheque** *which I received from you this morning as the result of obtaining* **Three Honours** *at the recent A.C.P. Examination. I can only add, in expressing my thanks to you, that no student who works through your Course conscientiously can fail to be quite satisfied with the results at the final examination. Will you please accept my sincerest thanks for all the pleasure which your unfailing attention and interest have afforded me.*

Yours gratefully, MARY A. CURLING.

At the above A.C.P. Examination (January, 1909)

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CLOUGH'S CORRESPONDENCE COLLEGE, Temple Chambers, London, E.C.

COLLEGE OF PRECEPTORS.—TEACHERS' DIPLOMA EXAMINATION.

Christmas, 1909.

The Christmas Examination commenced on the 28th of December, and was held in London and at the following Local Centres:—Birmingham, Bristol, Jersey, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Plymouth; and at Gibraltar; Bombay, Calcutta, Meerut, Ootacamund, and Sanawar (India); St. Lucia; Change Islands (Newfoundland); Port Elizabeth (Cape Colony); Lagos and Freetown (Sierra Leone).

The total number of candidates was 479.

The following are the names of the candidates who passed in the various subjects: (*hon.*) attached to a name, or to a letter denoting a subject, indicates that the candidate obtained Honours in the subject:—

Theory and Practice of Education.

Fellowship.

Hunter, W.
Smith, G. S.

Licentiateship.

Aveling, H. G.
Clarke, W. E.
Coles, W. A.
Cullingworth, H. E.
Cunliffe, W. E.
Davison, L. R.
Dent, E. J.
Dodd, C. N.
Ellis, A. C.
Farley, A. E.
Fox, Miss A. G.
Gannon, J.
Harris, H. M. C.
Henderson, A.
Irlam, W. E.
Jones, W. J.
Keen, I.
Kemp, A.
Knight, G. W.
Legg, J. T.
Maggs, I. J.
Martin, C.
Martin, W. G.
McCarthy, Miss A. M.
Moore, G.
Nevins, W. J.
Ogden, H. B.
Paynter, W. J.
Purdom, Miss M.
Roff, G. A.
Russell, Miss A. B.
Sanderson, G. G.
Shellock, F. G.
Swain, J.
Taylor, E.
Thomas, Miss E.
Tongue, Miss B.
Turnbull, T.
Wightman, J. C.

Associateship.

Adams, Miss M.
Arnold, A. E.
Ashwell, F.
Atkins, T.
Avis, Miss L. E.
Bailey, Miss E.
Balchin, Miss W. M.
Barker, T. E.
Barnes, T. S.
Barr, A.
Beale, Miss B.
Beer, Miss F. G.
Bellerby, W.
Beyaert, Miss J.
Birch, H. J.
Bloom, P. W.
Boobyer, J. E.
Boyden, E. H.
Cary, A. T.
Chapman, H.
Clarke, Miss A. A.
Clayton, Miss E. L.
Cole, W. W.
Collins, P. J.
Cross, Miss A. G.
Davies, Walter H.
Davies, William H.
Dexter, G. F.
Dodson, G. E.
Dunkey, P. H. E.
Durant, W. F.
Edwards, W. G.
Elcock, E. E.
Elliott, P.
Enderby, Miss L. L.
Gachet, W. R.
Garside, F. W.
Goode, B. R.
Goodland, A. J.
Green, G. T.
Green, H. E. B.
Gwilym, W.
Haines, R.
Hammond, Miss E. L.
Harris, Miss M.
Hayes, E. A.
Hemingway, J.
Hitchcn, R.
Hoare, A. R.
Howard, C. F.
Hutton, Miss M. K.
Irvine, R.
Jackson, J. H.
James, B.
Jenkin, Miss S. M.
Jones, Miss I. E.
Jones, J. S.
King, Miss K.
Kirk, R. F. H.
Kirkby, Miss L.
Land, T. T.
Le Cloarec, Miss M. C.
Le Floch, Miss M.
Lewis, B. E. W.
Llewellyn, W. G.
Lloyd, I. W.
Low, Miss A.
Lythall, F. H.
Maddle, Miss M. D.
Mann, Miss E.
McDowall, W.
McKevitt, Miss M. K. B.
Mockett, H.
Mollatt, C. A.
Moore, G. S.
Morrell, W. T.
Morriss, W. E.
Nado, Miss M. F.
Neumann, C. F.
Newham, Miss M. D.
Niederleithner, F.
Odam, W. E.
O'Dowd, Miss M. T.
Onions, R.
Peal, E. G.
Pilley, Miss D. A.
Pinnock, A. R.
Pugmire, H.
Rankin, Miss P. F.
Rees, W. H.
Robinson, Mrs. S.
Roden, H.
Rolfe, Miss A. E.
Schofield, Miss M. E.
Scollen, Miss M. E.
Scott, Miss M. I.
Searle, Miss D.
Sheckell, N. G.
Short, W. R.
Simpson, Miss A.
Slinger, J.
Smith, Miss A. E.
Smith, F.
Smith, F. C.
Stacey, H. W.
Stamper, J. R.
Stephens, J. A.
Stevenson, C.
Steventon, R. W.
Stone, R. A.
Swanborough, F. E.
Taylor, Miss E. W.
Taylor, Miss S. A.
Tindle, G. D.
Torrance, W. G.
Vicary, C. G.
Watson, Miss N.
Wecks, Miss A. R.
White, Miss E.
Whitebrook, J. C.
Whiteside, W. J.
Whitham, J.
Whittaker, J. H.
Wickes, A.
Willder, Miss A. B.
Williams, T.
Williams, T. S.
Wood, W. L.
Woodgate, Miss E.
Wright, H.

English Language.

(*Subject No.* 1.)

Allen, W. E. C.
Avis, Miss L. E.
Ball, F. G.
Barker, T. E.
Barnes, T. S.
Barr, A.
Benney, W. E.
Benson, F.
Beyaert, Miss J.
Boobyer, J. E.
Briden, A. C.
Broad, W.
Brookson, Miss M.
Byrne, E.
Cawley, H.
Chandler, C. C.
Chesterfield, H. W.
Clarke, Miss A. A.
Conlin, P. M.
Cunliffe, W. E.
Davey, J. G.
Dodson, G. E.
Eagle, J. S.
Edwards, W. G.
Elcock, E. E.
Elliott, A.
Enright, T. J.
Fleming, R.
Franklin, H.
Goodland, A. J.
Grainger, A. E. V.
Green, G. T.
Greenfield, B. A.
Hammond, Miss E. L.
Harland, A. J.
Harris, J. F.
Harris, Miss M.
Hassan, Mrs. C. E.
Hawke, J. A.
Hayes, E. A.
Hey, A. C.
Hickson, Miss V. E.
Hill, F.
Hoare, A. R.
Hobson, Miss M.
Hockaday, S. G. B.
Hughes, H. G.
Hulme, H.
Hutchinson, N. M.
Jeune, O. E.
Lewis, S. C. (*hon.*)
Long, Miss M. E.
MacLean, Miss A. K.
Marchant, P. J.
Matthews, Miss K.
McCartney, Miss M. C.
Mockett, H.
Mollatt, C. A.
Moore, Miss M. B.
Moore, W. H.
Murphy, Miss M.
Nado, Miss M. F.
Norton, N. H.
Odam, W. E.
Page, G. W.
Parker, Miss E.
Pinching, Miss O. E.
Pinnock, A. R.
Pook, Miss F.
Riches, P. G.
Rogers, Miss K.
Rowlands, G. W.
Rumble, W. E.
Sheckell, N. G.
Shuttleworth, A. V.
Slinger, J.
Smith, C. J.
Smith, F. C.
Speakman, C.
Speed, E. D.
Stacey, H. W.
Stamper, J. R.
Stanway, H. G.
Steele, Miss F. E.
Stoakes, G. E.
Stone, R. A.
Taylor, G. W.
Taylor, Miss S. A.
Thomas, H.
Tongue, Miss B.
Trist, Miss L. C.
Trott, Miss M. K.
Watson, Miss N.
Wellicome, A. R.
Whiteside, W. J.
Willder, Miss A. B.
Williams, T. S.
Wrench, A.
Wright, H.

English History.

Allen, W. E. C.
Atkinson, Miss A.
Attlee, H. G.
Avis, Miss L. E.
Baker, H. A.
Barker, T. E.
Barnes, T. S
Bartlett, C. T. (*hon.*)
Bedford, Miss V. E.
Benson, F.
Beyaert, Miss J.
Bloom, P. W.
Border, Miss G.
Boxhall, Miss A. (*hon.*)
Bradley, W. L.
Briden, A. C.
Brown, F. C.
Byrne, E.
Coulin, P. N.
Cunliffe, W. E.
Davidson, G. G.
Davies, E.
Davies, William H.
Dexter, G. F.
Dodd, E.
Dodson, G. E. (*hon.*)
Durant, W. F.
Edwards, W. G.
Elcock, E. E.
Elliott, A.
Elliott, P.
Enright, T. J.
Escott, S. W. D.
Evans, E. P.
Eyre-Walker, W.
Gardner, E. H.
Goddard, Miss E. G.
Goodland, A. J.
Green, J. S.
Griffiths, Miss E. F.
Harland, A. J.
Harris, Miss M.
Hassan, Mrs. C. E.
Hawke, J. A.
Hetherington, Miss F. M.
Hey, A. C.
Hill, F.
Hoare, A. R.
Hockaday, S. G. B.
Hughes, H. G.
Hulme, H.
Hutchinson, N. M.
Jeune, O. E.
Köster, E. V. W.
Lewis, S. C.
Marchant, P. J.
Matthews, Miss K. (*hon.*)
Middleton, D. H.
Moore, Miss M. B.
Moore, W. H.
Murphy, Miss M.
Nado, Miss M. F.
Neighbour, Miss C. B.
Norton, N. H.
Odam, W. E.
Payne, Miss M.
Peal, E. G.
Pickhaver, Miss G.
Pinnock, A. R.
Pook, Miss F.
Roden, H.
Rogers, Miss K.
Sanderson, G. G.
Saville, Miss D. A.
Sheckell, N. G.
Slinger, J.
Smith, Miss E.
Smith, F. C.
Stacey, H. W. (*hon.*)
Stamper, J. R.
Stepney, Miss E. E.
Stuart, R.
Symons, J. W.
Taylor, Miss S. A.
Thomas, H.
Thompson, W.
Turner, H. T.
Vicary, C. G. (*hon.*)
Webster, Miss F. E.
Wells, Miss G. J.
Wharton, G.
Whittaker, J. H.
Widdowson, M. (*hon.*)
Williams, F. G. T.

Geography.

Adamson, J. G.
Alderson, E.
Algate, E. W.
Annett, Miss F. M. (*hon.*)
Atkinson, Miss A.
Avis, Miss L. E.
Bacon, Miss M. E.
Barker, T. E.
Barnes, T. S.
Barrass, G. E. S.
Barton, B. B.
Bedford, Miss V. E.
Benney, W. E.
Beyaert, Miss J.
Bloom, P. W.
Boobyer, J. E.
Boyden, E. H.
Bradley, W. L.
Briden, A. C. (*hon.*)
Brooke, H.
Byrne, E.
Clarke, Miss A. A.
Clarke, E. H.
Clarke, H.
Clements, W. C.
Counsell, T.
Cross, Miss A. G.
Cunliffe, W. E.
Davey, J. G.
Davies, William H.
Dexter, G. F.
Dodd, E.
Dodson, G. E.
Durant, W. F.
Eagle, J. S.
Edwards, W. G.
Elcock, E. E.
Elliott, P.
Evans, E. P.
Eyre-Walker, W.
Fearn, W. A. C.
Gachet, W. R.
Gardner, E. H.
Gentry, C. W.
Goddard, Miss E. G.
Green, G. T.
Greenfield, B. A.
Griffiths, Miss E. F.
Hammond, Miss E. L.
Harland, A. J.
Harris, J. F.
Harris, Miss M.
Hayes, E. A.
Heath, J. A.
Hetherington, Miss F. M.
Hey, A. C.
Hill, F.
Hoare, A. R.
Jeune, O. E.
Jones, W. J. (*hon.*)
Kirkby, Miss L.
Kitchen, F.
Larkin, Miss I. G.
Lewis, S. C.
Mann, Miss E.
Marchant, P. J.
Matthews, Miss K.
McAllen, H. J. P.
McCartney, Miss M. C.
McKevitt, Miss M. K. B
Middleton, D. H.
Mockett, H.
Mollatt, C. A.
Moore, Miss M. B.
Morriss, W. E.
Murphy, Miss M.
Nado, Miss M. F.
Neumann, C. F.
Norton, N. H. (*hon.*)
Odam, W. E.
Page, G. W.
Payne, Miss M.
Peal, E. G.
Pickhaver, Miss G.
Pinching, Miss O. E.
Pinnock, A. R.
Pook, Miss F.
Postans, Miss M. H.
Purchase, Miss A.
Riches, P. G.
Roberts, T.
Roden, H.
Rotherham, C. L.
Rowlands, G. W.
Rumble, W. E.
Rutledge, I.
Sanderson, G. G.
Sheckell, N. G.
Shepheard, S. G.
Shuttleworth, A. V.
Slinger, J.
Smith, F. C.
Stacey, H. W.
Stanley, Miss M. A.
Stoakes, G. E.
Stone, R. A.
Stuart, R.
Taylor, Miss S. A.
Thrower, F.
Webster, Miss F. E.
Wharton, G.
Willder, Miss A. B.
Wilkinson, Miss F.
Winkless, F. E.
Woodbridge, Miss M. L.
Woodier, Miss E. M.
Wright, H.

Arithmetic.

Adams, Miss M.
Adamson, J. G.
Algate, E. W.
Allen, W. E. C.
Annett, Miss F. M.
Badham, Miss M. S.
Baker, H. A.
Ball, F. G.
Barker, T. E.
Barnes, T. S.
Barr, A.
Border, Miss G.
Boxhall, Miss A.
Bradley, W. L.
Briden, A. C.
Brooke, H.
Brown, F. C.
Butcher, Miss M.
Byrne, E.
Cawley, H.
Chandler, C. C.

Arithmetic (*contd.*).

Clarke, Miss A. A.
Clarke, E. H.
Clements, W. C.
Collins, P. J.
Cossins, Miss F.
Coulthard, J. G.
Counsell, T.
Cox, E. W. A.
Cunliffe, W. E.
Davey, J. G.
Davidson, G. G.
Davies, E.
Davies, William H.
Davis, Miss A. E.
Dent, E. J.
Dexter, G. F.
Dodd, E.
Dodd, Miss J. A.
Dodson, G. E.
Durant, W. F.
Eagle, J. S.
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Elcock, E. E.
Evans, E. P.
Eyre-Walker, W.
Fearn, W. A. C.
Fenny, J. H.
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Gachet, W. R.
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Goodland, A. J.
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Green, H. E. B.
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Heath, J. A.
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Hodgson, J. C.
Hulme, H.
Jervis, Miss F. E.
Jeune, O. E.
Jones, G. A.
Kelly, W. J.
Kemp, W. A. G.
Kitchen, F.
Knight, G. W.
Le Pévédic, J. M.
Lewis, S. C.
Long, Miss M. E.
Ludford, Miss A. H.
Malone, Miss J. A. M.
Marchant, P. J.
Matthews, Miss K.
McAllen, H. J. P.
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Mollatt, C. A.
Moore, G. S.
Moore, W. H.
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f. = French, *l.* = Latin.
s. = Spanish.

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a. = Astronomy.
b. = Botany.
ch. = Chemistry.
g. = Geology.
m. = Mechanics.
n. = Natural Philosophy and Astronomy.
p. = Experimental Physics.
ph. = Animal Physiology.
z. = Zoology.

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Matthews, Miss K.
McCartney, Miss M. C.
McDowall, W.
Merrick, Miss G. E.
Moore, G. S.
Morrell, W. T.
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Normanton, H. W.
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Payne, Miss M.
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Pilley, Miss D. A.
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Roberts, T.
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Wickes, A.
Williams, T.
Williams, T. S.
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OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS.—CHRISTMAS, 1909.

LIST OF SUCCESSFUL CANDIDATES AT COLONIAL AND FOREIGN CENTRES.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively :—

a. = Arithmetic.
al. = Algebra.
b. = Botany.
bk. = Book-keeping.
ch. = Chemistry.
d. = Drawing.
do. = Domestic Economy
du. = Dutch.
e. = English.
f. = French.
g. = Geography.
ge. = German.
geo. = Geology.
gm. = Geometry.
gr. = Greek.
h. = History.
he. = Hebrew.
i. = Italian.
l. = Latin.
lt. = Light and Heat.
m. = Mechanics.
ma. = Magnetism & Electricity.
ms. = Mensuration.
mu. = Music.
nh. = Natural History.
p. = Political Economy.
ph. = Physiology.
phys. = Elementary Physics.
s. = Scripture.
sc. = Elementary Science.
sh. = Shorthand.
sp. = Spanish.
tr. = Trigonometry.
w. = Welsh.
z. = Zoology.

The small figures [1] *and* [2] *prefixed to names in the Second and Third Class Lists denote that the Candidates were entered for the First and Second Classes respectively.*

In the addresses, Acad. = Academy, C. or Coll. = College, Coll. S. = Collegiate School, Comm. = Commercial, Conv. = Convent, Elem. = Elementary, End. = Endowed, Found. = Foundation, H. = House, Hr. = Higher, Inst. = Institute, Int. = International, Inter. = Intermediate, Poly. = Polytechnic, Prep. = Preparatory, P.-T. = Pupil-Teachers, S. = School, Sec. = Secondary, Tech. = Technical, Univ. = University

[Bracketing of names denotes equality.]

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Ajose, C.A. — Wesleyan High S., Lagos
Waddell, W. — Marist Bros.' S., Cala
Kuye, W.R.B. — Private tuition

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Jayawardene, F.N. *al.f.* — Lorenz Tutory, Colombo
Gilbert, C. *al.* — Gram. S., St. George's, Grenada
Perera, C.O. *al.f.d.* — Lorenz Tutory, Colombo
Chowles, A.C. *al.* — Marist Bros.' Coll., Uitenhage
Misso, H.W. *f.d.* — Private tuition
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Cramer, S.L. *d.* — Lorenz Tutory, Colombo
James, A, R. *f.d.* — Private tuition
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Bertus, L.S. — Private tuition
[1]Tweedie, G. — Conv. of the Sacred Heart, Klerksdorp
Andrews, E.A.E. *a.* — St. David's Anglican S., Grenada
de Silva, R.W. *f.* — Lorenz Tutory, Colombo
Mendis, J.V. *e.* — Central Coll., Colombo
Thambipillai, P.A. *s.* — Wesleyan Central S., Batticaloa
Holmes, H.O. — Marist Bros.' Coll., Uitenhage
Armstrong, J.R.O. *du.* — Marist Bros.' Coll., Uitenhage
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Higgs, C.C, *du.* — Marist Bros.' Coll., Uitenhage
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Fernando, G.V. — Central Coll., Colombo
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Fernando, J.V. — Central Coll., Colombo
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[1]Norton, O.I. — Marist Bros.' Coll., Uitenhage
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[2]Solomon, J.A. — Collegiate S., Accra
Almon, E.J. *al.* — Marist Bros.' High S., Port Elizabeth
[2]Maung Ni — Central Coll., Colombo
[2]McDonagh, J. *du.* — St. Aidan's Coll., Grahamstown
[2]Sivagnanam, T.C. — Central Coll., Colombo
Austin, R. *e.* — Marist Bros.' Coll., Johannesburg
Miller, R. *a.* — Marist Bros.' High S., Port Elizabeth
Rush, J.F. *a.du.* — Marist Bros.' Coll., Uitenhage
[2]Sagoe, S.Q. — Wesleyan High S., Lagos
[2]Canagaretnam, A.D. — Wesleyan Central S., Batticaloa
Clifton, J.P. *a.d.* — Marist Bros.' Coll., Uitenhage
Daverin, J.C. *e.a.* — Marist Bros.' Coll., Uitenhage
[2]Featherstone, N.E — Marist Bros.' Coll., Uitenhage
[2]Griffin, C.E. — Wesley High S., Governor's Harbour
Harrison, J. *e.a.al.gm.* — St. Aidan's Coll., Grahamstown
[2]Redhead, J. — St. George's R. C. Boys' S., Grenada
[2]Baker, D. — Central Coll., Colombo
Ferreira, F.H. *a.al.* — Marist Bros.' S., Cala
Lang, J. *d.* — Marist Bros.' Coll., Johannesburg
Spence, H.R. *a.* — Marist Bros.' Coll., Uitenhage
[2]de Saram, P.L. — Private tuition
Kayode, V.A. *a.al.* — Abeokuta Church Gram. S.
Ogunbayo, E. *a.al.* — Abeokuta Church Gram. S.
Hyman, L. *a.* — Marist Bros.' Coll., Johannesburg
Karp, A. *al.* — Marist Bros.' Coll., Johannesburg
McMaster, C. — Private tuition
Suckow, W. — St. Aidan's Coll., Grahamstown
Brownlee, W. *al.* — Marist Bros.' Coll., Johannesburg
Faux, M. *d.* — Marist Bros.' Coll., Johannesburg
Knott, A. *a.al.* — Marist Bros.' High S., Port Elizabeth
Kuola, N.A. *e.al.* — Abeokuta Church Gram. S.
Pettitt, C.A. *al.* — Marist Bros.' High S., Port Elizabeth
Prescott, H. — St. George's R. C. Boys' S., Grenada
[2]Nallanayagam, S.E.C. — Wesleyan Central S., Batticaloa
Reichenberg, A. *a.du.* — Marist Bros.' Coll., Johannesburg
Gould, C.W. *a.* — Marist Bros.' Coll., Uitenhage
Long, O.R.J. — Marist Bros.' Coll., Uitenhage
Marechean, A.B. *d.* — St. David's Anglican S., Grenada
Perkins, B. *a.al.* — Marist Bros.' High S., Port Elizabeth
Misken, W.E. *e.* — Marist Bros.' S., Cala
Read, A. *d.* — Marist Bros.' S., Cala
Kelly, D. *e.* — St. Aidan's Coll., Grahamstown
Marillier, F.L. — Marist Bros.' S., Cala
Rosenberg, I. *a.* — Marist Bros.' Coll., Johannesburg
[2]Senathi Raja, R.E. — Central Coll., Colombo
Aspoas, A. *al.* — Marist Bros.' Coll., Johannesburg
Baard, F. *a.* — Marist Bros.' Coll., Johannesburg
[2]Perera, B.A.E. — Central Coll., Colombo

BOYS, THIRD CLASS, PASS—*continued.*

Perera, S.V. — St. Benedict's Inst., Kotahena, Colombo
Rowley, E. — Marist Bros.' High S., Port Elizabeth
Fawson, F.Q. — Wesleyan High S., Lagos
²Morley, W.C. — Marist Bros.' Coll., Uitenhage
²Moses, C. — New Amsterdam Gram. S., Berbice
Sikuade, I.O. — Abeokuta Church Gram. S.
Abdul Azeez, S.M. — Mohomedan English High S., Maradana, Colombo
Froneman, E.E. *a.* — Marist Bros.' Coll., Uitenhage
²Allotey, I.J. — Gram. S., Accra
Heugh, F.C *al.du.* — Marist Bros.' Coll., Uitenhage
Ireland, A.B.L. — Private tuition
Roberts, N. — Marist Bros.' High S., Port Elizabeth
Atkinson, M. — Marist Bros.' High S., Port Elizabeth
Connell, L.P. *al.* — Marist Bros.' High S., Port Elizabeth
Herbstein, J. *mu.* — Conv. of the Sacred Heart, Graaff Reinet
Kilfoil, R. *du.* — Marist Bros.' Coll., Uitenhage
Lipede, J.A. *a.* — Abeokuta Church Gram. S.
Smith, L.S. — Private tuition
Duffey, J.B. *a.* — Marist Bros.' S., Cala
Etellin, A. — Marist Bros.' Coll., Johannesburg
²Gyee, M.A. — Private tuition
Mercier, H. *e.* — Marist Bros.' Coll., Uitenhage
Oladunjoye, M.A. — Abeokuta Church Gram. S.
Olubi, D.A. *s.* — Abeokuta Church Gram. S.
²Arulanandam, D. — Memorial English S., Manepay, Jaffna
²Ondaatjie, P.T.J. — Central Coll., Colombo
Perera, G.J.A. *s.* — St. Benedict's Inst., Kotahena, Colombo
Piton, C. *e.* — St. Aidan's Coll., Grahamstown
²Sterley, M. — Marist Bros.' Coll., Uitenhage
²Tete, J.L. — Wesleyan High S., Lagos
Cohen, H. *a.* — Marist Bros.' High S., Port Elizabeth
Groenewald, W. — Marist Bros.' Coll., Johannesburg
Sherman, J. — Marist Bros.' High S., Port Elizabeth
²Vaughan, A. — Marist Bros.' Coll., Uitenhage
²Wickremeratne, A.R. — Private tuition
Sanvee, J.Q. *f.* — Wesleyan High S., Lagos
Wardman, C. — Marist Bros.' High S., Port Elizabeth
²Arnold, G.V. — Marist Bros.' Coll., Uitenhage
Best, I. — Marist Bros.' Coll., Johannesburg
Godfrey, C. *a.* — St. Aidan's Coll., Grahamstown
Morgan, F. — Collegiate S., Accra
Arunachalam, P. *d.* — Central Coll., Colombo
Lyons, P. — Marist Bros.' Coll., Johannesburg
²Maharaju, R. — Private tuition
Morris, D.V. — Marist Bros.' S., Cala
Aberdeen, J.E. — Munich R. C. School, Grenada
Develing, R. — Marist Bros.' Coll., Johannesburg
²Goonewardena, J.P.D. — St. Paul's Boys' High S., Colombo
Packer, A.H.C. *a.* — Church S., Falmouth, Jamaica
²Akiwumi, A.M. — Wesleyan High S., Lagos
²Arumugam, S. — Memorial English S., Manepay, Jaffna
²Fernando, A. — Private tuition
²Jafferjee, I. — Central Coll., Colombo
Lawrence, D. — Marist Bros.' Coll., Johannesburg
Leonard, H.A. *a.* — St. Benedict's Inst., Kotahena, Colombo
Mohamed Hanifa, M.C. — Mohomedan English High S., Maradana, Colombo
Sealey, S. — Woburn Wesleyan S., Grenada
Somanather, S.V.O. — Wesleyan Central S., Batticaloa
Collopy, C. *a.* — St. Aidan's Coll., Grahamstown
Grigor, A. — Marist Bros.' High S., Port Elizabeth
²Mettle, J.G.S. — Gram. S., Accra
²Sinniah, M. — Private tuition
Asurvatham, S.V. — St. Andrew's Boys' S., Batticaloa
Kartigesu, S. — Wesleyan Central S., Batticaloa
King, R.L. *a.* — New Amsterdam Gram. S., Berbice
Norton, J.L. — Marist Bros.' Coll., Uitenhage
Fergusson, R.C. *a.* — Marist Bros.' S., Cala
Kanagasabapathy, C.U. — Wesleyan Central S., Batticaloa
Pike, H. — St. Aidan's Coll., Grahamstown
Regis, H. — St. David's R.C. School, Grenada
Rodrigo, S.V. *a.* — St. Benedict's Inst., Kotahena, Colombo
²Undivakharvalla, A.M. — Central Coll., Colombo
²Dodoo, J.C. — Gram. S., Accra
Francis, W.J. *a.* — Marist Bros.' S., Cala
Jacobs, P. — Private tuition
Nathanson, G. — Marist Bros.' Coll., Johannesburg
Farley, H. — Marist Bros.' High S., Port Elizabeth
²Ramanather, A. — St. Andrew's Boys' S., Batticaloa
Fernandopulle, I. — St. Benedict's Inst., Kotahena, Colombo
Medefindt, H.A. — Marist Bros.' Coll., Uitenhage
Solomon, J. *a.* — Marist Bros.' Coll., Johannesburg
Turvey, L. — Marist Bros.' S., Cala
Tweedie, R. *a.* — Conv. of the Sacred Heart, Klerksdorp
Abdul Hassan, A.C. *a.* — Mohomedan English High S., Maradana, Colombo
Borchert, E. *a.* — Marist Bros.' Coll., Johannesburg
Fernando, B.L.S. — City Coll., Colombo
²Fernando, P.C. — Central Coll., Colombo
Holey, J.E. — Marist Bros.' S., Cala
Meerwald, E.D.M. — St. Paul's Boys' High S., Colombo
Peiris, M.N. — Private tuition
Sanyade, T.P. — Abeokuta Church Gram. S.
Dowse, C. *a.* — Marist Bros.' Coll., Johannesburg
²George, E.W. — Abeokuta Church Gram. S.
Johnson, S.F. — Wesleyan High S., Lagos
Olumide, J.O. — Abeokuta Church Gram. S.
Peter, G.D. *a.d.* — Central Coll., Colombo
Ritson, P.M. — Private tuition
Todd, W. — Government S., Nairobi
²Van Ranzow, B.H. — St. Paul's Boys' High S., Colombo
Aspeling, E. — Marist Bros.' High S., Port Elizabeth
Goonewardene, S.N.D. *s.* — St. Paul's Boys' High S., Colombo
Hayward, J. — Marist Bros.' Coll., Johannesburg
Miller, S. — Marist Bros.' Coll., Uitenhage
Bell, D.F. — Marist Bros.' S., Cala
Fitchat, G.V. — Marist Bros.' Coll., Uitenhage
Heath, J.F. — Marist Bros.' S., Cala
²Kobbekaduwe, L.B. — Private tuition
²Williams, V.O. — Wesleyan High S., Lagos
Yorke, A.A.R. — Private tuition
²Abeyagoonesekera, E.W. — Private tuition
Casinader, J.W.H. — St. Andrew's Boys' S., Batticaloa
Furze, J.L. — Marist Bros.' Coll., Uitenhage
Gordon, J. — Marist Bros.' High S., Port Elizabeth
Hills, H. — Marist Bros.' High S., Port Elizabeth
²Melville, G.B. — New Amsterdam Gram. S., Berbice
Pyfrom, A.E. — Wesley High S., Governor's Harbour
Thomas, V.O. — Abeokuta Church Gram. S.
Christensen, P. — Marist Bros.' Coll., Johannesburg
Connellan, S. — Marist Bros.' Coll., Uitenhage
du Basson, E.C. — Marist Bros.' Coll., Uitenhage
Gardener, L.M. — Marist Bros.' Coll., Uitenhage
Schlimmer, H. — Marist Bros.' Coll., Johannesburg
Stumke, L.H. *a.* — Marist Bros.' Coll., Uitenhage
Vengadasalam, P. — Central Coll., Colombo
Ampalavanapillai, C.M. — Wesleyan Central S., Batticaloo
Connellan, E.M. *e.* — Marist Bros.' Coll., Uitenhage
Herbert, L. *a.* — Marist Bros.' Coll., Johannesburg
Ladeinde, E.A. — Abeokuta Church Gram. S.
Prescod, I.A. — Private tuition
Canagasabey, J.W.A. — Wesleyan Central S., Batticaloa
²Konyo, C.A. — Private tuition
Smith, V.C. — St. George's Anglican S., Grenada
Cuffy, H.N. — Private tuition
Abeyakoon, D.A. — Private tuition
Hills, R. — Marist Bros.' High S., Port Elizabeth
Malcomson, R. — Marist Bros.' S., Cala
²Vythilingam, N. — Central Coll., Colombo
Wells, E. *a.* — Marist Bros.' High S., Port Elizabeth
²Solomon, J.Q. — Gram. S., Accra
²Spencer, P.F.E. — New Amsterdam Gram. S., Berbice
Tarbet, H.J. — Marist Bros.' Coll., Uitenhage
²Abdul Hamid, M.L.H. — Private tuition
Fonseka, J.C.S. — St. Benedict's Inst., Kotahena, Colombo
Prior, E. — Marist Bros.' S., Cala
Silva, H.E. — St. Paul's Boys' High S., Colombo

GIRLS.

FIRST CLASS [OR SENIOR].—PASS DIVISION.

Laffitte, G. *e.f.* — St. Joseph's Conv., St. Lucia
Kernahan, T. *s.f.do.* — St. Joseph's Conv., Port of Spain, Trinidad
Belmar, M.T. *f.* — St. Joseph's Conv., St. Lucia
Knox, C. *f.* — St. Joseph's Conv., Port of Spain, Trinidad
Otway, E.L. *ms.* — Victoria Girls' High S., St. George's, Grenada.
du Boulay, J. *f.* — St. Joseph's Conv., St. Lucia
Riordan, H. *f.* — Conv. of the Holy Family, Johannesburg
Kernahan, M. — St. Joseph's Conv., Port of Spain, Trinidad

SECOND CLASS [OR JUNIOR].—HONOURS DIVISION.

Boucaud, S. *d.mu.* — St. Joseph's Conv., Port of Spain, Trinidad
Griffin, G.I. *al.* — Wesley High S., Governor's Harbour
Kernahan, M. *f.d.* — St. Joseph's Conv., Port of Spain, Trinidad
Krogh, L. *f.* — St. Joseph's Conv., Port of Spain, Trinidad
Belmar, B. *f.* — St. Joseph's Conv., St. Lucia
Laffitte, A. *f.* — St. Joseph's Conv., St. Lucia
Jackson, G. — Victoria Girls' High S., St. George's, Grenada

SECOND CLASS [OR JUNIOR].—PASS DIVISION.

Melvill, L. *du.* — Conv., of the Sacred Heart, Klerksdorp
Renwick, K.M. — Victoria Girls' High S., St. George's, Grenada
Sinclair, K. *a.al du.* — Conv. of the Sacred Heart, King William's Town
Mackintosh, G.M. *f.mu.* — St. Anne's Conv., Umzinto
Fletcher, W. — St. Joseph's Conv., Port of Spain, Trinidad
Letellier, M. *f.* — Conv. of the Sacred Heart, King William's Town
Murphy, L. — Conv. of the Holy Family, Johannesburg
McPherson, L.E. — Colonial High S., Kingston, Jamaica
Redhead, E. — St. George's R. C. Girls' S., Grenada
Magnan, C.L. — Colonial High S., Kingston, Jamaica
Thompson, E. — Victoria Girls' High S., St. George's, Grenada
Smyth, B.J. — Colonial High S., Kingston, Jamaica
Hensley, M. — Conv. of the Sacred Heart, King William's Town
Pyfrom, M.P. — Wesley High S., Governor's Harbour
Stranger, I.F. — St. Anne's Conv., Umzinto
Jones, M.F. — Government S., Nairobi

THIRD CLASS.—HONOURS DIVISION.

Davis, M. *s.e.a.mu.* — St. Joseph's Conv., Port of Spain, Trinidad
Lord, D. *s.e.a.al.f.* — St. Joseph's Conv., St. Lucia
Brent, E. *e.al.l.mu.* — Conv. of the Sacred Heart, Graaff Reinet
Lamy, R. *e.a.al.f.* — St. Joseph's Conv., Port of Spain, Trinidad
Duval, M. *s.e.a.al.* — St. Joseph's Conv., St. Lucia
Salmon, L. *s.e.a.al.f.* — St. Joseph's Conv., St. Lucia
Wapenaar, T. *e.du.* — St. Ursula's Coll, Krugersdorp
Wattrus, E. *a.mu.* — Conv. of the Sacred Heart, Graaff Reinet
D'Abadie, J. *s.a.f.* — St. Joseph's Conv., Port of Spain, Trinidad
Traverso, G. *s.a.al.f.* — St. Joseph's Conv., Port of Spain, Trinidad
Oliver, F. *a.mu.* — St. Ursula's Coll., Krugersdorp
Heanan, M. *a.al.* — Conv. of the Sacred Heart, King William's Town
Hunt, M. *a.gm.f.* — Conv. of the Sacred Heart, King William's Town
McNair, G.L. *s.* — Colonial High S., Kingston, Jamaica
Monteil, V. *s.d.* — St. Joseph's Conv., Port of Spain, Trinidad
Raphael, S. *a.al.d.* — Conv. of the Sacred Heart, Graaff Reinet
Gomes, R. *s.a.d.* — St. Joseph's Conv., Port of Spain, Trinidad
Lapeyrouse, G. *s.e.f.* — St. Joseph's Conv., Port of Spain, Trinidad

THIRD CLASS.—PASS DIVISION.

Modeste, V.R. — St. George's Anglican S., Grenada
Kruger, G. *e.mu.* — Conv. of the Sacred Heart, Graaff Reinet
Jansen, E. *a.al.* — Conv. of the Sacred Heart, Klerksdorp
Kernahan, M.E. — St. Joseph's Conv., Port of Spain, Trinidad
Pritchard, M.E. *a.* — St. Paul's R.C. School, Grenada
Senanayake, W.E.B.J. — Private tuition
Wharton, V. — St. Joseph's Conv., Port of Spain, Trinidad
Angeron, R. *d.* — St. Joseph's Conv., Port of Spain, Trinidad
McKenzie, E. — St. Elizabeth's High S., Krantz Kloof, Natal
Bain, U. — High S., St. George's, Grenada
Emmerich, G. *mu.* — St. Ursula's Coll., Krugersdorp
Wallis, M. *a.d.* — Conv. of the Sacred Heart, Klerksdorp
Henderson, A. — St. Joseph's Conv., Port of Spain, Trinidad
D'Abadie, M.H. *f.* — St. Joseph's Conv., Port of Spain, Trinidad
Overton, S. *a.* — Conv. of the Sacred Heart, Klerksdorp
Phillibert, W.E.A. — St. Paul's R.C. School, Grenada
Price, C. *e.* — Conv. of the Sacred Heart, King William's Town
Gomez, L. — St. Joseph's Conv., Port of Spain, Trinidad
Keys, M. *e.al.* — Conv. of the Sacred Heart, King William's Town
Hinton, V. — St. Elizabeth's High S., Krantz Kloof, Natal
Hanna, D. — Conv. of the Sacred Heart, Klerksdorp
Norman, M. *s.* — St. Joseph's Conv., Port of Spain, Trinidad
Overton, O. — Conv. of the Sacred Heart, Klerksdorp
Cover, J.M. — Colonial High S., Kingston, Jamaica
Silvera, E.E. *a.* — Westwood High S., Stewart Town, Jamaica
Herbstein, N. *al.* — Conv. of the Sacred Heart, Graaff Reinet
Hinton, R. *d.* — St Elizabeth's High S., Krantz Kloof, Natal
Haynes, F.E. — St. Paul's Anglican S., Grenada
Greaves, A.A. — Westwood High S., Stewart Town, Jamaica
Haynes, J.R.E. *a.* — Private tuition
Shelton, I.A.E. *d.* — Westwood High S., Stewart Town, Jamaica
Quin, G.M. — St. Anne's Conv., Umzinto
Gomez, M.I. — St. Joseph's Conv., Port of Spain, Trinidad
Maingot, A. *d.* — St. Joseph's Conv., Port of Spain, Trinidad
Scallan, E.M. — St. Anne's Conv., Umzinto
McLeod, J. — St. Joseph's Conv., Port of Spain, Trinidad
Lindenberg, C. — Conv. of the Sacred Heart, Klerksdorp
Kirchoffer, C. — Conv. of the Holy Family, Johannesburg
Boucaud, M. *a.* — St. Joseph's Conv., Port of Spain, Trinidad
Caldecott, G. *a.* — Conv. of the Sacred Heart, King William's Town
Cinnamon, E. — Conv. of the Sacred Heart, Graaff Reinet
Logie, O. *a.* — Conv. of Our Lady of Good Hope, Grahamstown
Whitfield, E. — Conv. of the Sacred Heart, Klerksdorp
D'Abadie, M.R. *f.* — St. Joseph's Conv., Port of Spain, Trinidad
Hanna, I. — Conv. of the Sacred Heart, Klerksdorp
Cruickshank, A. — St. Andrew's Wesleyan S., Grenada
Godbolt, V. — Conv. of the Sacred Heart, Graaff Reinet
Rothschild, J. *a.* — Holy Family Conv., Parktown, Johannesburg
Donald, A. — St. George's R.C. Girls' S., Grenada
Lowmann, D. — Conv. of the Sacred Heart, Klerksdorp
Senanayake, G.R.G.J. — Private tuition
Lindenberg, E. — Conv. of the Sacred Heart, Klerksdorp
Anderson, D. — Conv. of the Holy Family, Johannesburg
Gaynor, M.C. — Westwood High S., Stewart Town, Jamaica
Brooks, I.H. — Westwood High S., Stewart Town, Jamaica
Crawforth, L. — Conv. of the Holy Family, Johannesburg
D'Abadie, S. *f.* — St. Joseph's Conv., Port of Spain, Trinidad
Gomez, M. — St. Joseph's Conv., Port of Spain, Trinidad
Griffin, L.M. — Wesley High S., Governor's Harbour
Griffin, W.I. — Wesley High S., Governor's Harbour
Hoole, D. — Conv. of the Sacred Heart, Graaff Reinet
Bowles, E.L. — Wesley High S., Governor's Harbour
Henrey, I. — St. Ursula's Coll., Krugersdorp
Idelson, R. — Conv. of the Holy Family, Johannesburg
²Quartey-Papafio, M.K. — Gram. S., Accra
Bartlett, I. — Holy Family Conv., Parktown, Johannesburg
Kock, E. — Conv. of Our Lady of Good Hope, Grahamstown
Méheust, M. *f.* — Conv. of the Holy Family, Johannesburg
Stewart, E.M.L. — Church S., Falmouth, Jamaica
Tressi, D. — Conv. of the Holy Family, Johannesburg
Ogilvie, A.M. — High S., St. George's, Grenada
Williams, C.A. — Westwood High S., Stewart Town, Jamaica
Davis, N.H.W. — Westwood High S., Stewart Town, Jamaica
Long, A. — St. Anne's Conv., Umzinto
Boner, T. — Conv. of the Sacred Heart, Klerksdorp
Inglesby, W. — Holy Family Conv., Parktown, Johannesburg
Jacobs, Q. — Conv. of the Holy Family Johannesburg
Larsen, E. — Conv. of Our Lady of Good Hope, Grahamstown
Mitchell, R. — St. David's R.C. School, Grenada

LOWER FORMS EXAMINATION.—PASS LIST.

BOYS.

Albert, H.D. — New Amsterdam Gram. S., Berbice
Alexander, J. — Marist Bros.' Coll., Johannesburg
Arunasalem, C. — Memorial English S., Manepay, Jaffna
Atkinson, A. — Conv. of the Sacred Heart, Klerksdorp
Bayman, H. — Marist Bros.' High S., Port Elizabeth
Beckett, T. — Marist Bros.' Coll., Johannesburg
Bowen, J. — St. Aidan's Coll., Grahamstown
Brand, G. — Marist Bros.' Coll., Johannesburg
Brownlee, A. — Marist Bros.' Coll., Johannesburg
Bruessow, M.R. — Marist Bros.' S., Cala
Buchanan, J. — Marist Bros.' Coll., Johannesburg
Burah, T.K. — Mohomedan English High S., Maradana, Colombo
Byrne, V. — St. Aidan's Coll., Grahamstown
Campbell, A. — Conv. of the Sacred Heart, Klerksdorp
Clifton, C. — Marist Bros.' High S., Port Elizabeth
Connock, J. — Marist Bros.' Coll., Johannesburg
Cooper, L.G. — Marist Bros.' S., Cala
Cooray, P.F. — City Coll., Colombo
Cox, P.M. — High S., St. George's, Grenada
Crooks, B. — Marist Bros.' High S., Port Elizabeth
D'Abadie, J. — St. Joseph's Conv., Port of Spain, Trinidad
Darling, J. — Central Coll., Colombo
Davis, A. — Marist Bros.' Coll., Johannesburg
de Fenton, Y. — St. Aidan's Coll., Grahamstown
de Lacy, D. — Marist Bros.' Coll., Johannesburg
de Montbrun, J. — St. Joseph's Conv., Port of Spain, Trinidad
Duraisamy, T. — Memorial English S., Manepay, Jaffna
Eaton, C. — Marist Bros.' Coll., Johannesburg
Eaton, T. — Marist Bros.' High S., Port Elizabeth
Ferreira, G.I. — Marist Bros.' S., Cala
Ganter, G. — St. Aidan's Coll., Grahamstown
Garcia, L. — St. Joseph's Conv., Port of Spain, Trinidad
Gilbert, G. — Marist Bros.' Coll., Johannesburg
Gomez, L. — St. Joseph's Conv., Port of Spain, Trinidad
Gould, C.McD. — Marist Bros.' S., Cala
Grace, S. — Marist Bros.' High S., Port Elizabeth
Hamilton, R. — Marist Bros.' Coll., Johannesburg
Hind, C. — Marist Bros.' Coll., Johannesburg
Humphreys, A. — Marist Bros.' Coll., Johannesburg
Jacobs, S. — Marist Bros.' Coll., Johannesburg
Jaffe, S. — Marist Bros.' Coll., Johannesburg
Jayatilaka, E.A. — Central Coll., Colombo
Kaplan, J. — Marist Bros.' Coll., Johannesburg
Kearney, M. — St. Aidan's Coll., Grahamstown
Kinkead, S.M. — Marist Bros.' Coll., Johannesburg
Knox, P. — St. Joseph's Conv., Port of Spain, Trinidad
Kobrin, N. — Marist Bros.' Coll., Johannesburg
Launder, N. — Marist Bros.' Coll., Johannesburg
Liknaitzki, J. — Marist Bros.' Coll., Johannesburg
Mackey, W. — Marist Bros.' High S., Port Elizabeth
Manasewitz, J. — Marist Bros.' Coll., Johannesburg
Mason, C. — St. Aidan's Coll., Grahamstown
Mathews, D. — Marist Bros.' High S., Port Elizabeth
McCusker, A. — St. Aidan's Coll., Grahamstown
McLaren, J. — Marist Bros.' High S., Port Elizabeth
McMurtrie, A. — Marist Bros.' Coll., Johannesburg
Mendelsohn, S. — Marist Bros.' Coll., Johannesburg
Miller, D. — St. Aidan's Coll., Grahamstown
Muller, S. — St. Aidan's Coll., Grahamstown
Nadarjah, P. — Central Coll., Colombo
O'Brien, B. — Marist Bros.' High S., Port Elizabeth
O'Connor, B. — Marist Bros.' Coll., Johannesburg
O'Donoghue, E. — Marist Bros.' Coll., Johannesburg
Pearce, R — Marist Bros.' High S., Port Elizabeth
Perlman, M. — Marist Bros.' Coll., Johannesburg
Perring, C. — Marist Bros.' Coll., Johannesburg
Rennie, A. — Marist Bros.' Coll., Johannesburg
Roberts, D. — Marist Bros.' Coll., Johannesburg
Roberts, H. — Marist Bros.' Coll., Johannesburg
Robinson, P. — Marist Bros.' Coll., Johannesburg
Savell, H. — Marist Bros.' Coll., Johannesburg
Schultz, C. — Marist Bros.' S., Cala
Scullard, V. — Marist Bros.' High S., Port Elizabeth
Sherriffs, A. — Marist Bros.' Coll., Johannesburg
Short, F. — Marist Bros.' Coll., Johannesburg
Sieradzki, I. — Marist Bros.' Coll., Johannesburg
Silva, W.A.de — Central Coll., Colombo
Skinner, V.C. — Marist Bros.' S., Cala
Solomon, J. — Marist Bros.' Coll., Johannesburg
Spitz, L. — Marist Bros.' Coll., Johannesburg
Stauble, V. — St. Joseph's Conv., Port of Spain, Trinidad
Trow, L.S. — Marist Bros.' S., Cala
Tully, H. — Marist Bros.' Coll., Johannesburg
Van Gorkom, W. — Marist Bros.' Coll., Johannesburg
Veluppilla, V. — Central Coll., Colombo
Venn, A. — Marist Bros.' Coll., Johannesburg
White, G. — Marist Bros.' Coll., Johannesburg
Winkler, P. — Marist Bros.' Coll., Johannesburg

GIRLS.

Alexander, E. — Holy Family Conv., Parktown, Johannesburg
Arlaiu, E. — St. Joseph's Conv., St. Lucia
Atwell, E. — St. Joseph's Conv., St. Lucia
Beaubrun, L. — St. Joseph's Conv., St. Lucia
Bedeau, A.C.C. — High S., St. George's, Grenada
Blank, J. — Conv. of the Holy Family, Johannesburg
Blundell, D. — St. Ursula's Coll., Krugersdorp
Bonnet, J. — St. Joseph's Conv., St. Lucia
Brand, P. — Conv. of the Holy Family, Johannesburg
Brown, M. — Conv. of the Sacred Heart, King William's Town
Brown, W. — St. Joseph's Conv., Port of Spain, Trinidad
Browne, R. — Conv. of our Lady of Good Hope, Grahamstown
Cochrane, I. A. — High S., St. George's, Grenada
Cohnheim, V. — Holy Family Conv., Parktown, Johannesburg
Cooper, A. — Conv. of the Holy Family, Johannesburg
Cornilliac, F. — St. Joseph's Conv., Port of Spain, Trinidad
Crosby, J. — Holy Family Conv., Parktown, Johannesburg
Dall, E. — Conv. of the Holy Family, Johannesburg
Dall, M. — Conv. of the Holy Family, Johannesburg
deBoissière, G. — St. Joseph's Conv., Port of Spain, Trinidad
deGannes, O. — St. Joseph's Conv., Port of Spain, Trinidad
deSouza, M. A. — Ursuline Conv., New Amsterdam, Berbice
Dumanoir, B. — St. Joseph's Conv., Port of Spain, Trinidad
Eckstein, F. — St. Joseph's Conv., Port of Spain, Trinidad
Eckstein, M. — St. Joseph's Conv., Port of Spain, Trinidad
Emmerich, M. — St. Ursula's Coll., Krugersdorp
Erasme, K. — Conv. of the Holy Family, Johannesburg
Estment, V. — St. Ursula's Coll., Krugersdorp
Goodman, F. — Holy Family Conv., Parktown, Johannesburg
Gordon, I.E. — Church S., Falmouth, Jamaica
Grant, D. — Conv. of Our Lady of Good Hope, Grahamstown
Halsall, O. — Conv. of the Holy Family, Johannesburg
Heimann, A. — Conv. of the Holy Family, Johannesburg
Hendriks, G.R. — Colonial High S., Kingston, Jamaica
Hitge, Q. — St. Ursula's Coll., Krugersdorp
Hopkinson, F. — Ursuline Conv., New Amsterdam, Berbice
Jensen, E. — Conv. of the Holy Family, Johannesburg
Jonas, D.E. — Colonial High S., Kingston, Jamaica
Lahner, N. — St. Ursula's Coll., Krugersdorp
Livingston, J.A. — Colonial High S., Kingston, Jamaica
Lyons, D. — St. Ursula's Coll., Krugersdorp
Maher, C. — Conv. of Our Lady of Good Hope, Grahamstown
Mallinick, A. — Conv. of the Holy Family, Johannesburg
Marquez, E. — St. Joseph's Conv., Port of Spain, Trinidad
Mathis, N. — Holy Family Conv., Parktown, Johannesburg
McCabe, W. — Conv. of the Sacred Heart, King William's Town
Mendoza, L. — St. Ursula's Coll., Krugersdorp
Neall, C. — Holy Family Conv., Parktown, Johannesburg
Ormsby, B.S. — Colonial High S., Kingston, Jamaica
Peñalosa, C. — St. Joseph's Conv., Port of Spain, Trinidad
Ramson, E.M. — Colonial High S., Kingston, Jamaica
Randall, K. — Conv. of the Sacred Heart, King William's Town
Roberts, K. — Holy Family Conv., Parktown, Johannesburg
Sapapathy Pillai, M.A. — Memorial English S., Manepay, Jaffna
Searle, P. — Conv. of the Holy Family, Johannesburg
Simmons, C.S. — Colonial High S., Kingston, Jamaica
Steinkamp, E. — St. Ursula's Coll., Krugersdorp
Swartz, E. — Conv. of the Holy Family, Johannesburg
Taitt, A, — St. Joseph's Conv., Port of Spain, Trinidad
Texeira, C. — Ursuline Conv., New Amsterdam, Berbice
Theron, B. — St. Ursula's Coll., Krugersdorp
Thompson, D. — Holy Family Conv., Parktown, Johannesburg
Thomson, L. — Conv. of the Sacred Heart, King William's Town
Tobiansky, B. — Conv. of the Holy Family, Johannesburg
Tollemache, F. — Conv. of the Holy Family, Johannesburg
Townes, R. — Holy Family Conv., Parktown, Johannesburg
Venture, R. — Ursuline Conv., New Amsterdam, Berbice

SCHOOL CHILDREN UNDER SIX.

"A School Day for Children under Six" was the subject discussed at a meeting of the Froebel Society held (February 1) at the College of Preceptors. There was a crowded attendance of lady teachers. Mr. T. R. Ablett, Art Director of the Royal Drawing Society, who presided, spoke of the important part played by visualization in the teaching of a child under six years of age. It was important that whatever a child visualized in respect of number should be a substantial basis on which it could afterwards work, and what teachers had to think about was how to store the child's mind with pictorial appearances which would be of advantage in later years. Teaching children according to their natural growth was admittedly now the proper system. Teachers were endeavouring to give the unconscious teaching of the home, and all that could be done in the school was to try to bring the education there up to the high ideal sometimes attained in the home. If there was a want it was perhaps the lack of sequence and a proper linking of the various games during school hours.

Short papers on the subject were read by Miss Agatha Smith (Islington Day Training College) and Miss Yelland (Head of the Kindergarten, Froebel Institute). Miss Smith advocated the placing of reading, writing, and counting in the first half of the school day, thus reducing mental strain. Numbers should be dealt with incidentally and not made the main aim of lessons at this stage. If, as was sometimes suggested, all work that might be called serious was eliminated from the curriculum, there was ground that the criticism of the children would have to be taught what work meant when they entered the upper departments. Miss Yelland took as the foundation of the instruction of very young children the two principles of Froebelian teaching—social atmosphere and free play, with all that these terms contained. Part of the building up of social atmosphere was the recognition of authority and subordination. The liberty of free play was not licence. Moreover, life in the infant school should not be something apart from the education of home life. The aim was to have a period of relaxation following upon a period of fixed interest, to provide for frequent movement, to meet the essential demand of the characteristics of children at this period of development when they are getting control of their bodies, developing their powers of speech, and learning to watch, to listen, and to imitate. Unlike the reader of the first paper, Miss Yelland altogether ignored reading, writing, and counting, because the children at this stage were concerned with things, but they were preparing for this later work by gaining ideas, and with them words. The balance should be held between restraint and freedom, and the children occupied according to their nature and strength. If this was a true ideal it was bound to come, and when it came they should see that the ideal teachers were ready for it.

POINTS IN UNIVERSITY ADMINISTRATION.

PROFESSORSHIPS AND SCHOLARSHIPS.

Sir William Ramsay, speaking on Modern Universities at the annual dinner of the Bristol University Colston Society, said that much improvement might be introduced in the methods of election to University chairs. So far as possible it should be left to the Faculty to choose the right man; and in this connexion he considered that private letters were always more trustworthy than public testimonials. As to the payment of members of the staffs, the remuneration attaching to the moderately successful men in professions was much higher than that usually attached to a chair in subjects akin to those professions. Something was to be said in favour of the professor's fixed income, his possible leisure, and his undoubted position. If, however, he was paid at a much lower rate than he would obtain by entering some corresponding profession, it would happen that persons of one of these classes would occupy professorial chairs. First, there were a few men who, for the love of teaching or research or both combined, would carry on a professorial work on a pittance, however small. He doubted whether the public had any right to accept the self-sacrifice of such voluntary martyrs. Second, there were a very few men, happily blessed with a competency, who also would take to professorial work for the love of it. Third—and this would be the usual result of underpayment—the chairs would be filled with men of mediocre talents and capacity. The students would suffer; the generations, as they succeeded one another, would deteriorate.

He did not say that this had yet taken place in England. It certainly had in America, and that country had awakened to the fact and was considering what was the best remedy. Many of the American colleges had received large gifts. The temptation had been too often yielded to to spend those gifts in bricks and mortar and in increasing the number of the staff without increasing their remuneration, forgetting that the influence of one man of genius was of more value than that of many persons capable of instructing, but not of stimulating. Dealing with the question of the grounds on which a professor should be chosen, he mentioned that the Germans had elected in favour of capacity for research. It was rare to find a man enthusiastic about his own work and in the process of enlarging the bounds of knowledge who was unable to impart some of his enthusiasm to his pupils. Power of organization was necessary, but it was fatal to appoint a man who was not engaged in advancing his subject. It was not fair to make a staff conduct day and evening classes. Hard work killed no man, but it might prevent him advancing in a subject and make him content with carrying out bare routine.

Scholarships, in his opinion, were mostly a waste of money. If the sums were lent to the holders in case of need, what ought to be the stigma of pauperism but was not, worse luck, would be removed. He held most emphatically that they should not be wholly eleemosynary. He did not say the bestowal of scholarships always was a failure. He merely said that, if granted as loans, on evidence of power of application and of good conduct, they would, in most cases, be more profitably bestowed. What the public wanted to buy, or at all events should want to buy, was the educated brains of one who would, in future, prove useful to the State. The present method was one by which the article was uncertain and the price paid incommensurably high, owing to the high percentage of failures in attaining the standard of mind which the public had a right to demand.

GREEK IN MODERN LIFE.

Prof. Sir Samuel Dill, speaking at Queen's University, Belfast, as President of the Classical Association of Ireland, discoursed on the place of Greek in European culture and modern education. Teachers, he said, were never more able or more enthusiastic, the experience of a long past was at their command, and yet they were still debating with apparently few assured results. The very existence of the classics in large classes of secondary schools was at stake. A rigid general system imposed on schools, a mechanism of examinations, whether it be blundering or scientific, crushing the initiative and originality of the teacher, was death to real education. It was an evil hour when it was introduced into Irish education by Act of Parliament. When the schoolmaster resumed his old freedom, he would solve for himself many of the problems which were now fruitlessly debated. There would probably be fewer compositions in Latin and Greek for the great mass of boys, less formal grammar, and wider and more rapid reading, the only method by which scholars of the true type could be made. The teacher's living voice would, to a great extent, take the place of the written exercise, and that voice would solve the momentary difficulty and reveal the eternal charm in a manner just adapted to the pupil's need. Classical study would then cease to deserve the reproach of being a study of dead words, and the words and civilization of that great past, which made them what they were, would become as real and living as the life and gossip of London and New York. Greek being condemned as "useless," it was now often proposed to give it up even in grammar schools where Greek and Latin had been taught for generations. No sensible person denied that it could no longer be imposed on boys whose school life was short or who showed no aptitude for such studies. The higher scholarship and philosophy, the study of the literature and mental history of the Roman mind was, however, hardly possible without a competent command of Greek literature. In Greece lay the springs of their whole modern intellectual life, in every form of literary or plastic art, in science and political theory and literary criticism. Were those to whom they gave the credentials of their highest training to go forth with no direct knowledge of the fatherland of all culture? However Greek literature might for a time be treated in the schools, or by the opinions of the day, Greek learning, as Mr. Butcher had said, would take care of itself. No Philistinism would ever banish it from the pale of culture, because Greek literature and the Greek spirit were unique in the history of our race. All paths in the fields of intellect led back to Greece, as in the spiritual world they led to Galilee and Jerusalem.

REVIEWS.

English Literature.

"The Cambridge History of English Literature."—Vol. IV. *Prose and Poetry: Sir Thomas North to Michael Drayton.* (9s. net. Cambridge University Press.)

A bibliography occupying in smaller type more than a quarter of the number of pages devoted to the text impresses vividly the vast scope of the materials that form the basis of the present volume. Apart from the Bible, there is but little that can claim to rank as great literature, though not a few important works come under discussion. There is a feeling of transition and miscellaneousness—the tailing off of movements, sporadic attempts to strike out fresh lines of advance, and the chronicle of special groups of endeavour. In a brief history most of such works and activities are left unrecorded or swept into a general reference. Here they are treated on an intelligible scale and brought into distinct relation with the main course of the literature as consequences or as causes. The importance of the volume in the series is to be measured, not by the intrinsic quality of the materials discussed, but rather by their significance in their proper connexion with the great and familiar characters.

Mr. Whibley opens the volume with a finely appreciative and charmingly written chapter on the "Translators of the Tudor Period." He is followed by Prof. Cook, of Yale, who discourses most capably on the "Authorized Version" and its influence. He points out by the way that in fact "the Jacobean revision was never publicly authorized by Parliament or convocation, privy council or king," and that "the acceptance which it has enjoyed has been won chiefly on its merits." He considers the Bible as literature, examining its constitution and the qualities entitling it to be a classic; he discusses the problem that it presents to the translator; he reviews the influences that moulded the English language into a proper vehicle for "so stupendous a literary creation"; and he traces the influence the Bible has exerted, and continues to exert, as an English classic. This is an extremely comprehensive, able, and instructive chapter. The literature of seafaring and travel is full of the interest of varied and arduous adventure and discovery, of spacious hopes and startling realizations, and of the development of professional knowledge and skill. Hakluyt shows "much excellent prose, strong and vigorous in character, often dignified and persuasive," and "lucid and careful description, often lighted up by imagination and literary power"; while Hakluyt's volumes, together with the later collection of Purchas, "are the basis of our knowledge of the part which Englishmen played in enlarging the boundaries

of the known world in the great age of exploration and discovery." The conflict between the old rule-of-thumb and the growing methods of science comes to be represented markedly in the literature of the sea, as elsewhere. The victorious energy and ebullient joy of the time found natural expression in song, and the songs came to be gathered into song books and miscellanies: "there is the lyric of pure joy or grief, and there is the longer, graver, reflective lyric, revealing an attitude towards life which is perhaps more characteristically English." The treatment is limited almost exclusively to "what may be called the renascence elements in them, the gaiety, the paganism, the use of mythology and classical allusion," but the sober and didactic note is appreciatively recognized.

The exercises of the pulpit received a strong impulse from the Reformation; the people grew impatient of the "unpreaching prelates." "In an age when men read few books and had no newspapers, the sermon at Paul's Cross or the Spital was the most exciting event of the week"; and the preacher had no precisian notion of keeping clear of passing events, political or other. In political crises, general preaching was silenced; but, though a thousand pulpits in England might be covered with dust (as Bernard Gilpin said in a court sermon in 1552), there was no lack of preaching in London, "and it is London preaching which, almost alone, finds any place in literature." Fisher, Colet, Latimer, Hooper, Jewel, Hooker, Henry Smith, Donne—these represent the more important aspects of the literature of the pulpit during the period. Another group is constituted by the philosophers. Prof. Sorley characterizes generally the Scholastic movement, and indicates the main directions in which the English Scholastics influenced by their ideas later science and speculation. The handling of Lord Bacon is judicial and careful, though a sentence or two of estimate from the wider European point of view might be desiderated. Yet another group—the group of early writers on politics and economics—falls to be treated by Archdeacon Cunningham. The formal treatises were very few: "the thought of the day found incidental expression in literature of every sort—in plays and sermons, as well as in essays, satires, and pamphlets"; and the literary quality must not be very strictly judged. "The close connexion between political well-being and economic activities was more generally recognized than had ever been the case before." Dr. Cunningham gives a very lucid and instructive sketch of the essential points.

A very interesting chapter traces the development of popular literature by London writers—Lodge, Greene, Nashe, and their successors. We are shown "how social literature under the influence of classicism grew into Juvenalian satire, character writing, and essays, without losing sight of contemporary interests." City life is frankly pictured in the most varied forms in pamphlets and broadsides, in prose and in verse. Country pursuits and pastimes are also depicted, though mainly through practical guides—books of facts rather than of literary pretensions.

Between these groups, particular authors of more or less importance find special treatment—notably perhaps Drayton. Two final chapters deal very comprehensively with the Book Trade (1557–1625) and the Foundation of Libraries. Appended is a Table of Principal Dates, and a very full Index of Names. The volume is full of interest and it supplies valuable links in the chain of literary development.

Psychology for Teachers.

The Teacher's Handbook of Psychology. By James Sully, M.A., LL.D. New (Fifth) Edition. (6s. net. Longmans.)

A book that has been familiar to the teaching profession for nearly a quarter of a century scarcely requires an extended notice on the appearance of its fifth edition. Yet the statement on the title-page, "rewritten and enlarged (1909)," is so completely justified that the present issue may, in some respects, be regarded as a new work. Apart from the alterations effected by the recasting of some dozen chapters, this edition contains entirely new sections which deal with the psychology of emotion, the more recent studies of children, the interactions of mental process, development, variations of mental type and their experimental investigation, and the study of the individual mind. In addition to all this there are two new features which will greatly increase the value of the book as a vade-mecum. The index is much fuller than in previous editions, and there is a well chosen bibliography of nearly three hundred books and articles in scientific periodicals (published, for the most part, within the last decade) treating of psychology—general, experimental, and pedagogical.

We venture to quote a passage from the concluding chapter which provides at once a statement of the need for this new edition and a measure of its success in meeting that need. The passage is as follows:—

> The single processes—such as perception, imagination, feeling, and conative effort—are not discrete events as our way of studying them is apt to suggest to the student. Since consciousness is a "stream," there is no separation in the successive events which occur in it. The separation here, too, exists only for our thought. Again, with respect to the mode of occurrence of these events, it must be remembered that we have to do, not with a single series, but, as the metaphor of a stream might suggest, with a number of concurrent changes which tend to combine with and to modify one another. When, for example, looking at a fifteenth-century religious painting, we have an "emotional perception," we may, by reflection, discover that, while processes of perception and apperception determine the feeling, the latter profoundly modifies the character of the former process (page 548).

This is an admirable expression of a truth which the teacher, above all men, must ever keep before him during his study of psychology. But the earlier issues of this work tended rather to obscure the truth in the mind of the psychological tyro: less discriminating readers were betrayed, in the author's own words, into an "atomistic tendency to resolve mental processes into an aggregation of disconnected forms" (page 571). Such readers were unjust to the author, of course; but his plan of exposition favoured their mistake. We are not satisfied that the latest issue will save new readers of the same sort from repeating the blunder. There can be little doubt as to the nature of the impression left on the mind of the novice when the bulk of the book is employed in discussing "*separately* the development of the intelligence and of the other principal phases of mind." That impression will not be effaced by allusions made *passim* to the essential oneness of mental process, and the passage quoted above comes from the final chapter of the book.

From this point of view the revision is disappointing. It tends to be scrappy and lacking in proportion. Thus, while Sensation is treated in some detail, securing a chapter to itself and a share, necessarily, in the two chapters on Perception, we must turn to the index to find any consideration of Impulse, Instinct, or Habit. "Sensation" commands full type, but the "Psychology of Reading" is relegated to small type and an appendix. We suggest that a better revision would have been secured if "the organic unity of mind" had been placed in the foreground, and the account of sensation, mental reproduction, productive imagination, judgment, and the rest had been made merely illustrative of the general thesis. We should have welcomed many more pages written, like those on "Mental Elaboration" in this edition, from the pedagogic standpoint.

In spite of these drawbacks, we would urge all who in the past have used the "Handbook" to procure copies of this latest edition, and we trust that that great company will receive a considerable accession of new readers. Much attention is paid throughout the book to recent contributions to the theory of education, and the new index makes reference to passages in the text a thing fairly easy for those who have some knowledge of what is being done in this matter. Others will have reason to be grateful for the extensive and discriminating bibliography on pages 587–596.

The author seems unwilling to admit that object lessons have fallen into discredit (page 189), although he gives reasons which explain their disappearance from so many school time-tables to-day, when all accept Pestalozzi's doctrine of *Anschauungsunterricht.* (After that frankly Teutonic phrase we feel impelled to express the hope that the gods will confound the portentous word, "pedagogist," encountered for the first time on page 559 of the "Handbook.")

Schoolmasters will value the references to "Child Study" and the deductions therefrom which repeatedly occur throughout the book; the subject is peculiarly Prof. Sully's own, as we all recognize. But an even greater claim is established upon the schoolmaster's attention in this edition of the "Handbook" by reason of its constant appeal to the aims, methods, and results of experimental pedagogy. The number of references in this connexion to those epoch-making "Lectures" on the subject which Meumann published in 1907 is, of course, as large as one expects, and the work of Binet, Ebbinghaus, and others finds recognition. It would be unreasonable to exact references also to the articles and books published by such well known investigators as Schuyten, Claparède, and Netschajeff. As the "Hand-

book" now stands, it gives in a discursive way more information than any other British text-book on a mode of studying educational problems which has a most promising future before it.

GENERAL NOTICES.

CLASSICS.

Language and Character of the Roman People. Translated from the German of Oscar Weise, with additional notes and references for English readers, by H. A. Strong, M.A., LL.D., Professor of Latin, and A. Y. Campbell, B.A., Assistant Lecturer in Classics. Liverpool University. (6s. net. Kegan Paul, Trench, Trübner, & Co.)

As the translators say, this is certainly a "suggestive" book; and English readers are indebted to them not merely for the translation, but for numerous references to English treatises and a considerable number of additions and suggestions, especially as to the etymology of certain words, in which they follow the scholarly work of Prof. Walde of Innsbruck. Etymologies very readily become extremely unsafe foundations for a theory, and not unfrequently we hesitate to follow Prof. Walde with any more confidence than his predecessors; but that is a detail. The original work is of very mixed quality: instructive so far as founded on a sufficient basis of known facts, suggestive so far ingeniously developed from a meagre basis of fact, and merely speculative so far as dependent on etymologies and other dubious materials. The thesis has to be worked out, and thus there is a great temptation to evolve inferences "from one's inner consciousness." We have difficulty in believing that the Roman character can be read from the Latin language, except in very general and limited terms. We admit that the Roman character can be read into the Latin language in considerable detail. The work may therefore be taken as a *tour de force*—an exercise of great interest, but always requiring a steady critical supervision. At the same time, it is suggestive and attractive even when most adventurous. The later additions to the original work—chapters on the vulgar tongue and on the Latinity of Cicero and Caesar—are specially instructive.

"Illustrated Classics: Intermediate Series."—*Caesar's Civil War, Book I.* Edited by the Rev. W. J. Bensly, M.A., Assistant Master at Sherborne School. (2s. 6d. net. Bell.)

The text follows Kraner and Hofmann, except in point of orthography, which is in accordance with Du Pontet's (Clarendon Press) edition. Each chapter is headed with date and summary of contents. The notes, partly explanatory, partly philological, are very judicious and helpful. The introduction opens with a summary of dates, sketches Caesar's life to B.C. 49, discusses Caesar as general, author, and personality, explains the mechanism of Roman official government, and describes the Roman army (the last section being supplied by Mr. A. C. Liddell, M.A., Assistant Master at Westminster School). The work is complete, and thoroughly well worked out in details. Appended are exercises on the text for retranslation, a full index of proper names, and a vocabulary. There are 32 illustrations and two maps, appropriate and effective. An excellent edition.

The Ion of Plato. Edited by St. George Stock, M.A. Oxon., Lecturer on Greek in the University of Birmingham. (2s. 6d. Clarendon Press.)

The dialogue is very simple both in language and in matter, and Mr. Stock furnishes it with elementary notes, intending the edition specially for use in schools, not forgetting, however, an intermixture of points for teachers as well, "the outcome of much research into the language of Plato." The introduction deals pointedly with various aspects of the dialogue, and there and in the notes special regard is had to the importance of the "Ion" in connexion with Homer. A very careful and instructive edition.

MATHEMATICS.

Plane Trigonometry. By H. S. Carslaw, Sc.D. Camb., D.Sc. Glas. (4s. 6d. Macmillan.)

A valuable text-book for junior college students as well as for the advanced classes of the secondary school. The course of instruction is based on ideas of recent growth, and the author proves himself an excellent exponent of some of the tenets of the modern school of mathematical thought. The work consists of two parts. The earlier part is occupied with the development of the essentially elementary principles of the science and establishes a number of the simpler working formulæ, glancing lightly at theory that is too difficult for perfect apprehension by the beginner, but by no means slurring over its importance as part of the connected whole. At quite an early point four-figure logarithms are brought into use. Further, a first discussion of problems involving the determination of heights and distances and the subject of triangulation lends an interest to the work and tends to show the practical value of a study of Plane Trigonometry. The closing chapter deals with circular measure and introduces the reader to the conception of the linear representation of the entire system of rational and irrational number, touching moreover on sequences and limits. At the commencement of Part II the geometrical properties of the triangle and its allied circles form the subject of careful treatment. This is followed by an investigation of De Moivre's theorem and the developments of that theorem which are generally included in standard text-books of similar scope. The methods of solving trigonometrical equations, the subject of elimination, and the theory of certain of the fundamental series of special importance constitute the text of the subsequent pages. The volume in its entirety will serve as a very valuable introduction to the study of treatises of a more advanced character. The book has been well produced and is illustrated by numerous diagrams.

Introduction to the School Geometry. By W. P. Workman, M.A., B.Sc., and A. G. Cracknell, M.A., B.Sc., F.C.P. (1s. University Tutorial Press, Ltd.)

Intended to give effect to the recommendations of the recent circular issued by the Board of Education. The two stages into which the Board divides the preliminary course in geometry both find a place in the authors' syllabus. Thus the little volume first considers and illustrates the "fundamental concepts," the grasp of which it is the object of the teacher to ensure, and of the pupil to attain to, in the earlier of the two stages. Subsequently the range of the more advanced work is covered by an elementary study of simple problems and theorems, these being explained but not formally proved. Teachers are likely to regard the contents as constituting a useful course for beginners, but they will find it necessary to enlarge carefully on what the writers mean by the *number* of measurements required when the size of such objects as a "pencil" or an "egg" is sought; and, again, when considering vertical lines, it will obviously be well to introduce some such restriction as that the blackboard is to be suspended against a wall.

MODERN LANGUAGES.

Longmans' French Texts. Edited by T. H. Bertenshaw, B.A., B.Mus., Assistant Master in the City of London School.

This is a new series, arranged in three grades, each volume containing enough reading matter for one or two terms. The Elementary Series opens with *Le Premier Coucou de la Forêt-Noire* (L. Vuichoud) (teacher's edition, 8d.; pupil's edition, 6d.). The Intermediate Series is at present represented by *L'Eclusier* (Souvestre), and *L'Attaque du Moulin* (Zola) (teacher's edition, 1s.; pupil's edition, 9d.). In the Advanced Series we have *Fontenoy* (Margueritte) (teacher's edition, 1s. 3d.; pupil's edition, 1s.). All these volumes are edited by Mr. Bertenshaw himself. The literature is good and suitable; the notes are explanatory and suggestive, and well adapted to the different stages: and the exercises furnish easy and progressive practice on the materials of the text. Each volume is provided with a full vocabulary. The specialty of the "teacher's edition" is a Supplement containing a translation of the exercises. The whole series gives high promise of usefulness, and the volumes are well printed and tastefully got up.

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$$w(x-z)=c-bz+xz^2;$$
therefore, from (iv), $d(x-z)^2=(-c+bx-x^2z)(c-bz+xz^2)$; therefore
$$d(x+z)^2-4dxz=-c^2+bc(x+z)-b^2xz-cxz(x+z)+2bx^2z^2-x^3z^3.$$
Hence, from (1),
$$x^3z^3-2bx^2z^2+xz(b^2+ac-4d)+a^2d-abc+c^2=0,$$
from this equation xz can be found, and hence with (i) we find x and z, and from (ii) and (iv) we find y and w. If $a=3$, $b=9$, $c=11$, $d=12$, we have $x^3z^3-18x^2z^2+66xz-68=0$, from which $xz=2$ or $8\pm\sqrt{(30)}$; taking $xz=2$, we shall get
$$x=1,\ z=2,\ w=3,\ y=4,\quad\text{or}\quad x=2,\ z=1,\ w=4,\ y=3.$$
The other values of x, z, y, w are imaginary. One value of x is $\frac{1}{2}[3+\sqrt{(-15)}-2\sqrt{(-2)}]$; the other values are similar.

(II) $x+z=a$, $w+xz+y=b$, $xw+yz=c$, $yw=d$...(1, 2, 3, 4).
From (1) and (2), $$x^2-ax=w+y-b \quad\text{.....(5)}.$$
From (1) and (3), $$x=(c-ay)/(w-y) \quad\text{.....(6)}.$$
Substituting from (6) in (5), we have
$$(c-ay)^2-a(c-ay)(w-y)=(w+y-b)(w-y)^2,$$
or $$c^2-ac(w+y)+a^2wy=(w+y-b)[(w+y)^2-4wy].$$
Let $w+y=t$, and substitute $wy=d$ (4), and we have
$$t^3-bt^2+(ac-4d)t+4bd-c^2-a^2d=0,$$
whence $w+y$, and then, from (4) and (6), solution completed. When a, b, c and d have given values, cubic reduces to $t^3-9t^2-15t+203=0$, integral root $=7$, whence $w=4$, $y=3$, or $w=3$, $y=4$; from (6), $x=2$ or $x=1$; and, from (1), $z=1$ or $z=2$. Imaginary values are also easily found.

16778. (C. E. YOUNGMAN, M.A.)—If three parallels touch a cardioide at P, Q, R, then the tangents *from* P, Q, R will meet at a point T lying on the circle inscribed in the space between the curve and its double tangent.

Analytical Solution by A. M. NESBITT, M.A.

The co-ordinates of any point (l) on the cardioide
$$a^2y^2=(x^2+y^2)(x^2+y^2-2ax),$$
are $$2a(1-l^2)/(1+l^2)^2,\quad 4al/(1+l^2)^2;$$
and the tangent at (l) whose equation is
$$y(l^3-3l)-(1-3l^2)x+2a=0 \quad\text{.....(1)},$$
will pass through the point (K) on the curve, if
$$\mathrm{K}(2l+\mathrm{K})+3=0 \quad\text{.....(2)},$$
as may readily be verified by substituting the co-ordinates of the point (K) in the equation (1).

But, if the tangents at three K points be parallel we have K given by
$$\mathrm{K}^3+3\mathrm{K}^2\mu-3\mathrm{K}-\mu=0 \quad\text{.....(3)}.$$
Eliminating K from (2) and (3), we find
$$(l\mu-9)(3l\mu-2l^2+3)=(5\mu-3l)^2;$$
which yields $$2l^3\mu-3l^2(\mu^2+3)-6l\mu+27+25\mu^2=0 \quad\text{.....(4)},$$
whence, l, m, n being the roots of (4),
$$mn+nl+lm+3=0.$$
Now, if we find the condition that the tangents at l, m, n are concurrent, we get the determinant whose first row is
$$|\,l^3-3l,\ 1-3l^2,\ 1\,|,$$
equal to zero; and this at once leads to $\Sigma mn+3=0$, a condition we have already proved to be true.

Now the point of concurrence of the l and m tangents is
$$y/3(l+m)=x/(3-l^2-lm-n^2)=2a/(3l^2m^2+8lm+3-l^2-m^2),$$
so that
$$y/6a=(l+m)/(3l^2m^2+\ldots)=(m+n)/(3m^2n^2+\ldots)=(n+l)/(3n^2l^2+\ldots),$$
since the l, m, n tangents are concurrent. Thus
$$y/6a=2\Sigma l/(3\Sigma m^2n^2+8\Sigma mn+9-2\Sigma l^2).$$
But, by virtue of equation (4), the last denominator reduces readily to
$$9(\mu^2+3)/2\mu^2.24(\mu^2+1),\quad i.e.,\ \text{to}\quad [72(\mu^2+1)\Sigma l]/\mu,$$
so that $$y/a=\mu/6(1+\mu^2).$$

Similarly, $x/2a = (9-2\Sigma l^2-\Sigma mn)/\text{same denominator}$

$$= [-2(\Sigma l)^2\mu]/72(\mu^2+1)\,\Sigma l = [-(\mu^2+3)]/24(\mu^2+1),$$

or $$x/a = -(\mu^2+3)/12(\mu^2+1).$$

Thus $$2+12x/a = (\mu^2-1)/(\mu^2+1), \quad 12y/a = 2\mu/(\mu^2+1),$$

or $$(x+\tfrac{1}{6}a)^2+y^2 = (\tfrac{1}{12}a)^2.$$

But this circle has double contact with the cardioide on the line $64x+7a=0$, and also touches the line $4x+a=0$; the latter has double contact with the cardioide at the points whose ordinates are given by $16y^2=3a^2$. Hence the locus is the circle inscribed in the space between the cardioide and its double tangent.

Note by the PROPOSER.—Mr. Nesbitt's proof is equally good for the more general property that, if three tangents touching at P, Q, R meet at a point (x, y), then, in their turn, the tangents from P, Q, R meet at another point (x', y'). For equation (3) can be written

$$k^3+3k^2\mu-3k-\mu' = 0,$$

μ and μ' being x/y and $(x-2a)/y$; and then (4) is

$$8l^3\mu'-12l^2(\mu\mu'+3)-24l\mu'+108+(9\mu+\mu')^2 = 0;$$

so that here also $$mn+nl+lm+3 = 0.$$

To get the equations between (x, y) and (x', y'), identify (1) and (4): that gives

$$y'/8\mu' = x'/[-4(\mu\mu'+3)] = (2a-x')/[108+(9\mu+\mu')^2]$$
$$= 2a/[96-4\mu\mu'+(9\mu+\mu')^2],$$

whence $$x' = -8a(x^2+3y^2-2ax), \quad y' = 4ay(x-2a);$$

each with denominator $24(x^2+y^2)-8ax+a^2$.

16771. (*Communicated by* C. M. ROSS, B.A.)—Show that

$$\begin{vmatrix} \frac{1}{1!} & 1 & 0 & 0 & \dots & 0 & 0 \\ \frac{1}{2!} & \frac{1}{1!} & 1 & 0 & \dots & 0 & 0 \\ \frac{1}{3!} & \frac{1}{2!} & \frac{1}{1!} & 1 & \dots & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \frac{1}{(n-1)!} & \frac{1}{(n-2)!} & \frac{1}{(n-3)!} & \frac{1}{(n-4)!} & \dots & \frac{1}{1!} & 1 \\ \frac{1}{n!} & \frac{1}{(n-1)!} & \frac{1}{(n-2)!} & \frac{1}{(n-3)!} & \dots & \frac{1}{2!} & \frac{1}{1!} \end{vmatrix} = \frac{1}{n!}.$$

[N.B.—This question was proposed in the Mathematical Tripos, 1909, Part I, Old Regulations.]

Solutions (I) *by* Hon. G. R. DICK, M.A.; (II) *by* A. M. NESBITT, M.A.; (III) *by* T. W. CHAUNDY.

(I) Consider the determinant

$$\begin{vmatrix} a_1 & 1 & 0 & 0 & \dots & 0 \\ a_2 & a_1 & 1 & 0 & \dots & 0 \\ a_3 & a_2 & a_1 & 1 & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ a_n & a_{n-1} & & & \dots & a_1 \end{vmatrix} \equiv A_n.$$

Developing we get $$A_n = a_1A_{n-1}-a_2A_{n-2}+\dots-(-1)^{n-1}a_n \quad \dots\dots\dots\dots(\alpha).$$

Now, let $$f(t) = 1+a_1t+a_2t^2+\dots+a_nt^n+\dots,$$
$$F(t) = 1+A_1t+A_2t^2+\dots+A_nt^n+\dots;$$

therefore, by virtue of the above relation (α), $F(t)f(-t) = 1$ for all values of t. If $a_n = A_n$ for all values of n, then $f(t) = F(t)$ identically, and the form of f is such that for all values of t, $f(t)f(-t) = 1$. The general solution of this functional equation is $f(t) = \phi(t)/[\phi(-t)]$, where ϕ is a perfectly arbitrary function of t, which when expressed as a power-series contains both even and uneven powers of t. Hence

$$a_n = \frac{1}{n!}\left(\frac{d}{dt}\right)^n\left(\frac{\phi(t)}{\phi(-t)}\right) \quad (t=0);$$

if we take $\phi(t) = e^{\frac{1}{2}t}$, we get $a_n = 1/n!$, which is the special case considered in the Question. The general value of a_n may be written thus

$$\frac{1}{n!}\left(\frac{d}{dt}\right)^n\frac{\alpha+\beta t+\gamma t^2+\dots}{\alpha-\beta t+\gamma t^2-\dots} \quad (t=0).$$

(II) Make a new first row by multiplying the first row by n, the second by $-n(n-1)\dots$, and the r-th by $(-)^{r+1}n(n-1)\dots(n-r+1)$, and adding. Every term in the new first row will be some multiple of the expansion of $(1-1)$ to some power, except the first, which will be $1-(1-1)^n$. Thus the given determinant, call it Δ_n, is seen to be Δ_{n-1}/n; whence the desired result at once follows.

[Rest in *Reprint*.]

16793. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show how to resolve $N = (x^4+4y^4)$ into four factors algebraically for certain (integer) values of x, y. *Ex.*—Give one or more examples of $N > 10^{20}$ completely resolved into prime factors.

Solution by R. NORRIE, M.A.

If we put $x = a^3$, $y = 2b^3$; the resulting expression is resoluble into four factors. Thus

$$N = a^{12}+64b^{12} = (a^3)^4+4(2b^3)^4 = (a^6+4a^3b^3+8b^6)(a^6-4a^3b^3+8b^6) \dots (1)$$

and $$N = (a^4)^3+(4b^4)^3 = (a^4+4b^4)(a^8-4a^4b^4+16b^8) \dots\dots\dots\dots (2).$$

From (1) and (2) we derive finally

$$N = (a^2+2ab+2b^2)(a^2-2ab+2b^2)(a^4+2a^3b+2a^2b^2+4ab^3+4b^4)$$
$$\times(a^4-2a^3b+2a^2b^2-4ab^3+4b^4).$$

A more general algebraical solution is obtained by putting

$$x = a^{2m+1}, \quad y = 2^m b^{2m+1},$$

since N is then of the two forms

$$(a^{2m+1})^4+4(2^m b^{2m+1})^4 \quad \text{and} \quad (a^4)^{2m+1}+(4b^4)^{2m+1}.$$

We notice, *inter alia*, that the expression

$$a^{4m+2}+2^{m+1}a^{2m+1}b^{2m+1}+2^{2m+1}b^{4m+2}$$

has always the factor $a^2-2ab+2b^2$.

N.B.—Colonel Cunningham remarks that the above solution is quite a *special* one, and has the disadvantage of running at once into high numbers.

The PROPOSER discusses the problem as follows:—

One resolution of the Bin-Aurifeuillian N into two co-factors L, M is well known, viz., $L = x^2-2xy+y^2$, $M = x^2+2xy+y^2$.

A second (algebraic) resolution $N = L'.M'$ may be found by the author's Diophantine method (applicable to all 4-tic functions, see the author's paper in *Messenger of Mathematics*, Vol. 38, 1909, pp. 145 *et seq*). By finding the G.C.M., say l of (L, L'), m of (M, M'), λ of (L, M'), μ of (M, L'), N is resolved into the four factors $N = lm\lambda\mu$.

Let $$N = (x^2+Cy^2)^2-y^2.z^2 = P'^2-Q'^2 = L'M'.$$

This requires $$2Cx^2+(C^2-4)y^2 = z^2.$$

If this last Diophantine equation—here termed the "Factorizant"—be soluble for certain values of C, every solution (x, y, z) gives values of x, y such that $N = P'^2-Q'^2 = L'.M'$ as required.

To apply this practically, values of C must be found that will yield *soluble* Factorizants. Any small number $N_0 = x_0^4+4y_0^4$ will suffice for this; thus, two suitable values of C are usually obtained, viz.,

$$C = (\pm P'_0-x_0^2)/y_0^2 \text{ (one is sometimes ineffective).}$$

Ex.—Take $N_0 = 5 = 1^4+4.1^4$, whence $x_0 = 1$, $y_0 = 1$, $P'_0 = \pm 3$, $Q'_0 = 2$. Here $P'_0 = +3$ gives $C = +2$, which is ineffective. But $P'_0 = -3$ gives $C = -4$, whence the factorizant is $-8x^2+12y^2 = z^2$. Every solution (x, y, z) of this gives a new factorizable N.

One of the most interesting series of solutions arises from taking $x = x_0 = 1$ (constant), whereby the factorizant becomes $(\frac{1}{2}z)^2-3y^2 = -2$. By aid of the "unit form" $2^2-3.1^2 = +1$, the successive solutions (y_r, z_r) may now be formed by the succession-formulæ

$$y_r = \tfrac{1}{2}z_{r-1}+2y_{r-1}, \quad \tfrac{1}{2}z_r = 2.\tfrac{1}{2}z_{r-1}+3y_{r-1},$$

and the co-factors of N_r are $L'_r = P'_r-Q'_r$, $M'_r = P'_r+Q'_r$,

where $$P'_r = -1+4y_r^2, \quad Q_r = y_rz_r.$$

It will be found that the successive numbers N_0, N_1, N_2, &c., form a "chain," *i.e.*, are such that $M'_r = L'_{r+1}$ throughout. This is a property of all 4-tic functions N factorized by this Diophantine method with x constant (see Art 47–47*d* of the paper above quoted).

The successive solutions (y_r, z_r) for this series $N_r = (1^4+4y_r^4)$ are given below, together with the factorizations of N_r up to $r = 11$.

The factors of M'_r only are here printed for each N_r, because those of L'_r are found under N_{r-1} (since each $L'_r = M'_{r-1}$). The circumflex (^) in the type separates the co-factors λ_r, m_r of each M'_r obtained as above described from the double resolution $N_r = L_rM_r = L'_rM'_r$. The table ends with N_{11}, being the highest number (26 figures) of this series completely factorizable by the large Factor Tables ($l_{11}, m_{11}, \lambda_{11}, \mu_{11}$ being all $< 9.10^6$).

$r =$	0	1	2	3	4	5
$y, z =$	1, 2	3, 10	11, 38	41, 142	153, 530	571, 1978
$M' =$	1.^5;	13.^5;	17.^53;	193.^5.13;	241.^25.29;	37.73.^17.53;

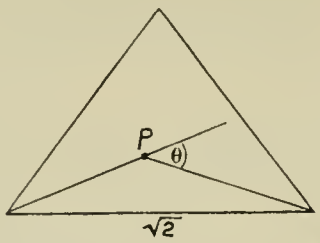
$r =$	6	7	8
$y, z =$	2131, 7382	7953, 27550	29681, 102818
$M' =$	3361.^5.2017;	37633.^5.13.193;	46817.^140453;

$r =$	9	10	11
$y, z =$	110771, 383722	413403, 1432070	1542841, 5344558
$M' =$	13.61.661.^25.29.241;	652081.^5.391249;	7300801.^17.37.53.73;

The chain property very much facilitates the factorization; as it will be found that the factors $l_r, m_r, \lambda_r, \mu_r$ can (in such chains) be separated by aid of the preceding $l_{r-1}, m_{r-1}, \lambda_{r-1}, \mu_{r-1}$ without the labour of finding the G.C.M. of L_r, M_r, L'_r, M'_r which would otherwise be necessary.

A further interesting property of this chain is that $m_{2r+1} = M'_r$.

16759. (R. Chartres.) — P is any point in the triangle. Show that the mean value of $\theta = \log 2$.



Solution by Professor Nanson.

We have identically

$$(4ac-b^2)(an-cl)^2+[b(an+cl)-2mac]^2$$
$$= ac[(2an+2cl-bm)^2-(4ac-b^2)(4ln-m^2)],$$

whence result stated is obvious.

11514. (Professor Morley, M.A.)—Let the complex variables w, z be connected by the relation $2w = z + b^2/z$; show that, if z describes a circle, w describes a nodal bicircular quartic.

Solution by Professor Nanson.

Let $\xi, \eta = x \pm iy$, $u, v = X \pm iY$, so that $z = \xi$, $w = u$. Thus taking b to be real, we have $2u = \xi + b^2/\xi$, $2v = \eta + b^2/\eta$.

Now, since z describes a circle, we have

$$\xi\eta + p\xi + q\eta + r = 0.$$

Moving the origin to the centre h, k, we get

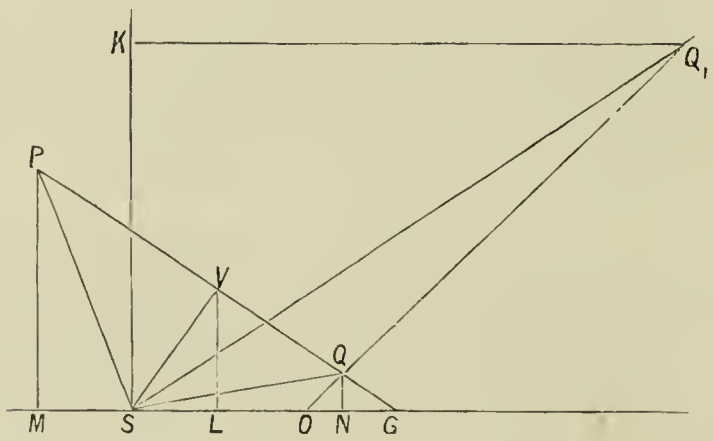
$$2u = -h + \xi + b^2/(\xi + h), \quad 2v = -k + \eta + b^2/(\eta + k).$$

Since $\xi\eta = c^2$, it is obvious that (u, v) traces out a unicursal quartic. The straight lines given by $\xi = \infty$, $\xi = -h$, $\eta = \infty$, $\eta = -k$ are asymptotes parallel to the axes which are isotropic. Hence the curve is bicircular and, as it is unicursal, it must have a third node. When h, k vanish, the locus reduces to the conic found (*Reprint*, Vol. xvi, p. 109) and the line at infinity counted twice.

16797. (C. E. Youngman, M.A.)—On PG, normal to a parabola, Q is such that $SQ = \frac{1}{2}PG$; show that the locus of Q is a cardioide.

Solutions (I) *by* W. F. Beard, M.A.; (II) *by* C. M. Ross, B.A.

(I) Draw SV perpendicular to PG, and PM, SK, VL, QN perpendicular to the axis SG. Let length of latus rectum $= 4a$, so that $LM = LG = a$. Cut off $SO = a$. Take Q_1 on OQ so that $OQ_1 \cdot OQ = a^2$.



Draw Q_1K perpendicular to SK. Join SQ_1.

$$PQ.QG = PV^2 - QV^2 \quad \text{(because } PV = VG)$$
$$= SQ^2 - QV^2 \quad \text{(because } PV = SQ)$$
$$= SV^2 = SL.SG;$$

but $SL = OG$, because $SO = LG$, and $SG = SP$; therefore

$PQ/SP = OG/GQ$, and $\angle SPQ = \angle QGO$, because $SP = SG$;

therefore triangles SPQ, QGO are similar; therefore $\angle SQP = \angle QOG$, and thus $\angle SQG = \angle SOQ$; therefore triangles SQG, SOQ are equiangular and similar.

Again, because $OQ.OQ_1 = OS^2$; therefore $\triangle Q_1OS$ is similar to $\triangle SOQ$, and therefore to $\triangle SQG$; therefore $\angle SGQ = \angle Q_1SO = \angle SQ_1K$ by parallels. Thus

$$KQ_1/SQ_1 = VG/SG \quad \text{(from similar triangles)}$$
$$= SQ/SG \quad \text{(because } VG = SQ)$$
$$= OQ_1/SQ_1 \quad \text{(because triangles } Q_1OS, SQG \text{ are similar)};$$

therefore $KQ_1 = OQ_1$; therefore locus of Q_1 is a parabola focus O, directrix SK, and Q is the inverse of Q_1 with regard to O; therefore locus of Q is a cardioide.

(II) Let $y^2 = 4ax$ be the given parabola, and $(at^2, 2at)$ the point P. The equation of the normal PG is

$$y = -tx + 2at + at^3 \ldots (1),$$

and this meets the axis in the point $G(2a + at^2, 0)$. Hence

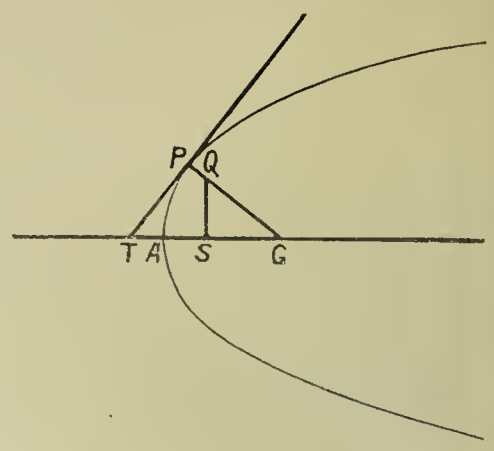
$$PG^2 = 4a^2(1+t^2),$$

and $SQ^2 = (x-a)^2 + y^2$,

where (x, y) is the point Q.

Now $SQ^2 = \frac{1}{4}PG^2$ by data, therefore

$$(x-a)^2 + y^2 = a^2(1+t^2) \ldots (2).$$



From (1) and (2) by the elimination of t^3, $t = ay/[(x-a)(x-2a)+y^2]$. Substituting in (2) it becomes

$$(x-a)^2 + y^2 = a^2 + a^4y^2/[(x-a)(x-2a)+y^2]^2 \ldots\ldots\ldots\ldots (3),$$

which is the locus of Q. Now change the origin to the focus $S(a, 0)$, the equation (3) gives

$$x^2 + y^2 = a^2 + a^4y^2/[x(x-a)+y^2]^2,$$

or

$$(x^2+y^2)^2 - 2xa(x^2+y^2) + x^2a^2 = a^2(x^2+y^2) - 2xa^3 + a^4,$$

after eliminating the common factor $x^2 + y^2$, *i.e.*,

$$(x^2+y^2-ax)^2 = a^2(x^2+y^2-2x+a) \ldots\ldots\ldots\ldots (4).$$

The standard equation of a cardioide is $r = a(1+\cos\theta)$, or in Cartesians $(x^2+y^2-ax)^2 = a^2(x^2+y^2)$. The equation (4) only differs from this equation in possessing the extra term $a^2(a-2x)$, and must therefore also represent a cardioide. Therefore, &c.

QUESTIONS FOR SOLUTION.

16823. (A. H. S. Gillson.)—A point on a sphere is determined by its longitude ϕ and latitude λ. Then, it is well known that the surface of the sphere can be conformally represented on a plane by the equation $X + iY = f(\phi + i\theta)$, where $\operatorname{sech}\theta = \cos\lambda$, and f denotes any arbitrary functional form. If $f(\mu) = k\sin\mu$, show that in the map the meridians are the hyperbolas, and the parallels of latitude the ellipses, of a confocal system of conics, the distance between the foci of which is $2k^{\frac{1}{2}}$. If $f(\mu) = k\mu^2$, show also that the meridians and parallels of latitude are parabolas, having a common focus at the origin, and whose common axis is the axis of real quantities. Find the formula for the magnification in each case.

16824. (*Communicated by* Leonard T. Miller.)—The hour numbers of a clock are reversed, as in the accompanying diagram, 12 being in the position normally occupied by 1, and so on. If the hands are fixed in the position indicated, and constitute a path, up or down which, in either direction, any number may be moved; and if the numbers may be moved one at a time in clockwise or anti-clockwise direction round the face, so that no number overleaps another, find the smallest number of moves required to completely reverse the numbers, so that they may ascend in clockwise direction, without necessarily occupying their normal positions. Establish a formula for a clock with n time-divisions. [N.B.—Mr. Miller gives Mr. T. H. Neal as his source of information.]

16825. (J. C. Swaminarayan, M.A.)—Show that

$$\int \cot^{-1}(x^2-x+1)\,dx$$
$$= (x-\tfrac{1}{2})\cot^{-1}(x^2-x+1) + \tfrac{1}{2}\sin^{-1}\left\{\frac{2x-1}{\sqrt{[(x^2-x+1)^2+1]}}\right\}$$
$$-\sinh^{-1}\left\{\frac{2x-1}{2\sqrt{[(x^2-x+1)^2+1]}}\right\}.$$

16826. (C. M. Ross, B.A.)—If $u = x_1^2x_2^2x_3^2 \ldots x_n^2$, prove that the value of the Hessian $H(u)$ is $(-)^{n-1}2^{n+1}(2n-1)(x_1x_2x_3\ldots)^{2n-2}$.

16827. (Lt.-Col. Allan Cunningham, R.E.)—Let

$$\phi(x, y) = ax^4 + bx^3y + cx^2y^2 + bxy^3 + ay^4,$$

show that $N = \phi(x, y) = \phi(x', y')$ is usually solvable (in integers) if either of $(2a \mp 2b + c)(12a - 2c) = -(\alpha^2 + \beta^2)$; [all symbols being integers]. State exceptions, and show that N is usually resolvable into two cofactors. Ex.—Solve $N = x^4 - 10x^2y^2 + y^4 = x'^4 - 10x'^2y'^2 + y'^4$ in integers. Give an example with $N > 10^{12}$ resolved into prime factors.

16828. (Professor Escott.)—Find real roots of the equations

$$x^2 + w^2 + v^2 = a^2, \quad w^2 + y^2 + u^2 = b^2, \quad v^2 + u^2 + z^2 = c^2 \ldots (1, 2, 3),$$
$$vw + u(y+z) = bc, \quad wu + v(z+x) = ca, \quad uv + w(x+y) = ab \ldots (4, 5, 6).$$

16829. (A. M. Nesbitt, M.A.)—If $(a+b)!/[a!\,b!]$ be denoted by (a, b), prove that

(1) $(a, b) = (a-n, b) + n(a-n+1, b-1) + \ldots$
$\qquad + {}_nC_r(a-n+r-1, b-r+1) + \ldots + (a, b-n)$,

(2) $(a-n, b) = (a, b) - n(a, b-1) + \ldots$
$\qquad + (-1)^r {}_nC_r(a, b-r+1) + \ldots + (-1)^n(a, b-n)$.

16830. (Professor Nanson.)—Find the condition that

$$a(y-z)^2 + b(z-x)^2 + c(x-y)^2$$

may be a perfect square. Also the condition that

$$a(y-z)^2 + \ldots + \ldots + f(x-w)^2 + \ldots + \ldots$$

may be the product of two factors linear in x, y, z, w, and generalise.

16831. (Professor Cochez.)—Construire les courbes

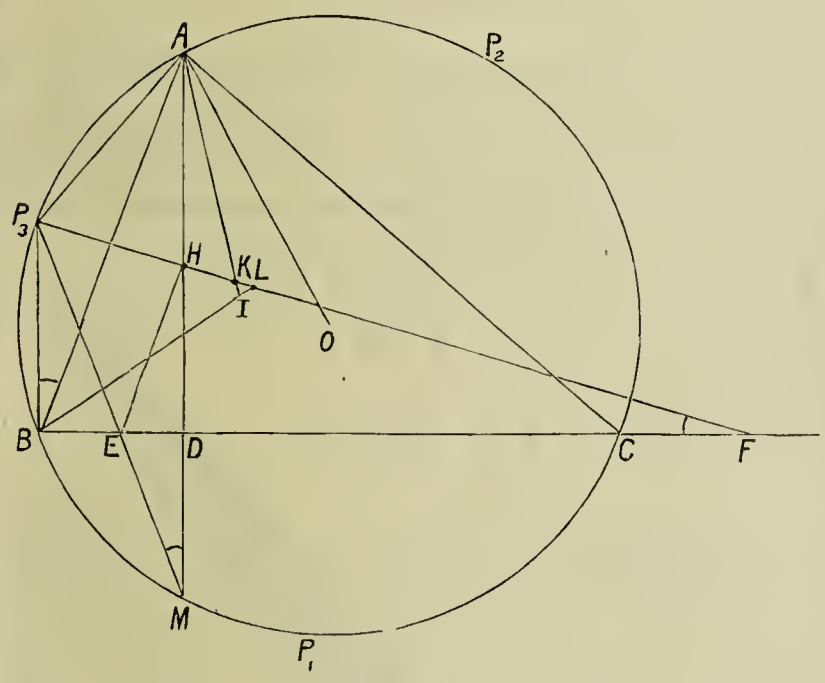
(1) $y = \sqrt{\{x^2 - 1 + \sqrt{[x^4/(x^2+1)]}\}}$,

(2) $y = \sqrt{\{[x \pm \sqrt{(x^2-1)}]/x\}}$.

16832. (R. C. Archibald, Ph.D.)—Suppose a hypocycloid H, with n cusps in the finite part of the plane, and an epicycloid E, with $n-2$ finite cusps to have the same circum-circle of radius na. The equations of H and E may be written so as to differ only by a sign. The degree $2(n-1)$, and class n, of both H and E are the same. The total length of H is equal to the total length of E, viz., $8a(n-1)$. The total area of H is to the total area of E in the ratio of $n-2$ to n, *i.e.*, inversely as the number of their "finite" cusps. State similar results for singularities and double tangents. Is there any position of H and E where they intersect orthogonally apart from cuspidal points of H?

16833. (C. E. Youngman, M.A.)—If the feet P, Q, R of the normals from N to a cardioide be collinear with a fourth point M on the curve, and if Mpqr be a perpendicular chord, then the tangents at p, q, r will concur, at T, and NT will go through the centre of the cardioide.

16834. (W. F. Beard, M.A. Suggested by Question 16725.)—ABC is a triangle, O its circum-centre, H its orthocentre; a rectangular



hyperbola is described with AH as diameter and AO as tangent, and similar rectangular hyperbolas are described through BH, CH. Prove (i) that these curves meet the circum-circle again in the same three points P_1, P_2, P_3; (ii) that the pedal lines of P_1, P_2, P_3 are respectively perpendicular to P_1H, P_2H, P_3H; (iii) that these pedal lines form a triangle equal in all respects to P_1, P_2, P_3.

16835. (M. T. Naraniengar, M.A.)—ABC is a triangle inscribed in a conic of eccentricity e, and x, y, z the focal distances of A, B, C. Prove that

$$a^2(x-y)(x-z) + b^2(y-z)(y-x) + c^2(z-x)(z-y) = 4e^2.\Delta^2,$$

where a, b, c are the sides and Δ the area of the triangle ABC.

16836. (Professor Neuberg.)—Des coniques de même excentricité numérique c/a ont un foyer commun F et passent par un même point M. Démontrer que le lieu du second foyer F′ est une circonférence et que la directrice correspondante enveloppe une conique.

16837. (F. G. W. Brown, B.Sc., L.C.P.)—With respect to any triangle show that the radii of the Brocard, Lemoine, and cosine circles respectively form the sides of a right-angled triangle. If the Brocard radius is equal to the radius of the cosine circle, prove (1) that the Brocard angle is approximately 20·7°, (2) that when the triangle is isosceles its vertical angle is either 24·3° or 114·3°.

16838. (Professor Sanjána, M.A. Suggested by Question 16181.)—Two opposite connectors of a quadrangle are equal, and on the other four connectors similar isosceles triangles are described (all outwardly or all inwardly) with successive vertices P, Q, R, S. Prove that PR and QS are at right angles.

16839. (D. Biddle.)—Given two straight lines of indefinite length meeting at right angles in A, also a point P known to be in the hypotenuse, and a circle (enclosing P) which passes through A and through the mid-point of the hypotenuse. Complete the triangle.

16840. (S. Narayana Aiyar.)—Two points A and B are taken, one on each of two concentric circles with centre S, and triangles are inscribed in either of the circles with the vertex at one of the points A or B, and the base passing through the other point. Show that the locus of the orthocentre of these triangles consists of two concentric circles with the symmetrique of the point S, with respect to the middle point of AB, as centre.

16841. (Sonti V. Ramamurty, B.A.)—Prove that the common orthocentre of a spherical triangle and its polar triangle is collinear with its two isogonal conjugates with respect to the two triangles.

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10769. (Professor Ramaswami Aiyar, M.A.)—An ellipse is inscribed in a triangle ABC, the base AB of which is fixed so that the points of contact divide the sides AC, BC in given ratios. Show that if (1) the major axis, (2) the minor axis, (3) the eccentricity, (4) the directions of the axes, and (5) the distance between the foci of the ellipse be given, the locus of the vertex C is (1) an ellipse, (2) a hyperbola, (3) a circle, (4) a rectangular hyperbola, and (5) an oval of Cassini.

11068. (Elizabeth Blackwood.)—Four decimal fractions are to be added together, the digits of which are taken at random. The first of these fractions (a repeating decimal) has eight places with a point over the fourth and eighth places. The second has eight places with a point over the third and eighth. The third has six places with a point over the third and sixth. The fourth has four places and is not a repeater. Show that, in the sum of these four fractions, there will probably be sixty-four places of decimals with a point over the fifth and sixty-fourth; and determine the exact value of this probability.

11188. (A. Martin, LL.D.)—Four spheres of radii a, b, c, d touch each other externally, each touching the other three; four spheres of radii w_1, x_1, y_1, z_1 are drawn in the space enclosed by them, each touching the other three and three of the given spheres; and four spheres of radii w_2, x_2, y_2, z_2 are drawn in the space enclosed by the first group of inscribed spheres each touching the other three and three of the first group of inscribed spheres; and so on. Find the radii w_n, x_n, y_n, z_n of the n-th group of inscribed spheres.

11472. (W. J. Greenstreet, M.A.)—M is any point in the plane of a triangle ABC. If d_1, d_2, d_3 are the distances MA, MB, MC, when is $\Sigma \sin 2A/d_1$ a maximum?

11571. (D. Biddle.)—Ten men form a tontine, agreeing to pay £1 each annually so long as life lasts, the survivor to have the whole at 3 per cent. compound interest. The nine die off at intervals of 1, 2, 3, or 4 years (variable, but all equally probable). Find the maximum, the minimum, and the mean sum realized.

11835. (Professor Orchard, M.A., B.Sc.)—Show that from a sphere of volume 65340000π can be formed ninety-nine sets of three, each consisting of a sphere, a cylinder, and a cone, such that the radii of the ninety-nine spheres shall be in arithmetical progression.

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Thursday, February 10th, 1910.—Sir W. D. Niven, President, in the chair.

The following papers were communicated:—

"Note on Double-Sixes of Lines": Mr. H. W. Richmond.

"On the Diffraction of a Solitary Wave": Prof. H. Lamb.

Dr. H. F. Baker made an informal communication in the form of three Notes on the Theory of Functions: (1) "On a certain Logical Principle," (2) "On the Establishment of the Order of a Doubly Periodic Function," (3) "Two Queries."

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EXAMINATIONS.

Diplomas.—The next Examination of Teachers for the Diplomas of the College will commence on the 29th of August, 1910.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in May, 1910.

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CONTENTS.

	Page
Leader: The Part of the Learner	145
Notes	146
Greekless Art Students in the Divinity Hall—The Praises of Latin Prose—Cure for Bad Penmanship—Education in the Fields—German in Britain and English in Germany.	
Summary of the Month	148
Universities and Colleges	149
Deputation to the Chancellor of the Exchequer—Sheffield—National University of Ireland—Belfast.	
The Educational Ladder	149
The College of Preceptors:	
Meeting of the Council	150
Professional Preliminary Examination: Pass List, March, 1910	151
Practical Examination for Certificates of Ability to Teach: Pass List, February, 1910	151
Certificate and Lower Forms Examinations, Christmas, 1909: Lomas de Zamora Centre	151
The Training and Certification of Teachers: Conference	151
Esperanto: Its Position and Progress. By Miss E. A. Lawrence	152
The Regional Method in Geography (Mr. H. J. Mackinder)	153
The Training of the Child: A Plea for Instruction in the Art	153
Current Events	157
Fixtures — Honours — Endowments and Benefactions — Scholarships and Prizes — Appointments and Vacancies — Literary — General.	
Demonstration Schools: Their Purpose, Method, Results. Address by Prof. Findlay to the College of Preceptors	161
Conférences Françaises: Scènes et Récits. Par M. Stéphane Barlet	165
Reviews	165
The Literature of the Victorian Era (Walker)—The Stone Ages in North Britain and Ireland (Smith).	
General Notices	167
First Glances	170
Mathematics	172

The Educational Times.

The Part of the Learner.

In our July issue of last year we indicated the gist of the Foundation Oration that had just been delivered by the Principal of the University of London at University College. The full print has now been published by the Union Society of the College—at any rate, it is only a day or two since it came into our hands; and, as the thesis is much too important to be dismissed in a summer's afternoon, we are glad to have it brought before us in complete statement and argument. We should not readily undertake to define an Oration. If any one expect flights of rhetoric, Dr. Miers will disappoint the expectation; yet his unpretentious and even familar expression of lucid thought will grip the reader's attention, and persistently urge him—the effect of oratory without oratorical arts. Dr. Miers was addressing University students. We are all familiar with the view, as expressed by President Butler of Columbia University, that "there is really only one fundamental problem in higher education, and that is to find the teacher"; and we do not limit it to the higher education. But, "after all, if you come to think of it," says Dr. Miers, "the learner is as important a person in educational matters as the teacher; the consideration of how he is to learn is as vital to success as the question how the instructor is to teach; and to leave out of account the mental attitude and the action of the pupil, and to regard him as so much passive or merely responsive material, is as absurd as it would be to leave out of account the action of the sails and consider only that of the rudder in the movement of a ship." No doubt; but Dr. Miers knows that in point of fact teachers are not so absurd: their methods are laboriously adapted to what they conceive to be the conditions of the student. The question seems to be a question of degree; and so it is, but it is much more—it is essentially a question of attitude. The real point is that, with all our organization, it is still necessary to take care that the learner shall not "become fettered by the chains of method, and forget that his own part in the process should be the more important one, if only he will make it so."

Dr. Miers, then, summons the learners to independent activity in their studies. Like every attentive observer, he is struck by the energy and ability shown by students in organizing things for themselves. The students, says President Butler in his annual report last November, "carry on daily, weekly, and monthly publications of merit; they conduct successfully and with skill the business administration of various student enterprises; they maintain, through co-operation, useful clubs and societies of their own"; and all this "represents an educational influence which is very genuine." Indeed, he says, "the time has come when the College Faculty should take note of the existence of these educational forces at their very door, and should attach proper weight and importance to them": "the man who augments his work in the classroom and laboratory by valuable human and business training through participation in recognized student activities, should find that fact entered to his credit upon the college records."

Probably Dr. Miers would not disagree; but his immediate outlook is in a different direction. He looks mainly at the whole athletic organization and at the intellectual interest and effort that is put into it, and he suggests whether the like interest and effort might not be put into the men's studies. In later life one meets many men full of regrets that they had neglected the opportunities afforded them at the University to acquire knowledge and habits that would have been very important aids in their career; and Dr. Miers thinks that men should waken up to the way to learn, not when they are plunged into their life's occupation, but not later than they have left school and entered the University. But how to do it? Not by taking notes of lectures that furnish information that may readily be found in printed books; not by mere attendance at lectures and reading of prescribed books; not by mere plodding through the prescribed laboratory course, or otherwise doing merely what their instructors direct them to do. No; they must strike out lines of their own. Let them develop a spirit of "competition with their teachers." "Let professors be regarded, like libraries and laboratory apparatus, as sources of knowledge from which we have to extract as much as we can; let us declare war against them; enter into the lists with the intention of becoming their equals or superiors; and

sharpen our wits upon their trained and practised intellects." Thus:

> I should like to see good debates and discussions carried on by small special groups—historical, chemical, archæological, &c.—on the work of the term, with papers like those which are read in the Learned Societies of London: discussions in which the Professor and his class meet on equal terms, and where new ideas are proposed by students themselves, to be demolished, criticized, or supported, as the case may be, by the Professor.

We have no doubt this very process is going on in many of the classrooms within Dr. Miers's own jurisdiction. We know of one seminar at least where the students reluctantly realize the end of the course; and that on one occasion the Professor was tentatively sounded whether a private society might not be formed to continue similar studies.

The mental attitude is the thing—"the spirit of inquiry and discovery, the desire to advance, the determination to seek and to find for yourselves." Let the learner seek and find; let the teacher help him to understand what he sees. The searcher may set out to look for something and fail to find it; yet he may find something else: he may go forth to find his father's asses and stumble upon a kingdom. Even if he goes the wrong road, and finds nothing, "it is enough that he is doing something new and with an original purpose: it matters not that he is on the wrong path—he is urged by the spirit of a pioneer, and is no longer a blind man following his guide." In this connexion we are greatly tempted to quote a few sentences from President Butler's report:

> It is vitally important always and everywhere to be on guard against the domination of the mechanical, the book-keeping, and the accounting element in education. Nothing is easier than to permit students and teachers alike to gain the impression that, before obtaining a degree or an academic honour, one has only to complete so many subjects, to attend so many hours, or to win so many points. Machinery for measurement and record is necessary, no doubt, but it is often more necessary that this machinery be not allowed to dominate the teaching or to gain control of the imagination of the teacher and the taught. There are those now busily instructing the public who seem to believe that it would be valuable to know the relative kilowatt power of a course in Latin prose composition and one in modern history. They display a nervous anxiety to measure the institutional voltage, and to know the relative cost *per capita* of teaching Greek and anthropology. They appear to think that if only they can have access to Treasurers' reports and Registrars' statistics and rearrange them in some new and occult fashion, like men on a chess-board, higher education will at once be reformed and rise to new planes of achievement. These are the delusions of the mechanically minded. They are related to the fancies of the devotee of perpetual motion, and they shut out from sane contemplation the desperately human problem of education.

Now the question comes to be how this "desperately human problem" can be worked out on lines conforming to the human requirements. There would be difficulty in turning the students loose in libraries to hunt and to browse at will, or in leaving them to their own devices with Bunsen burners and copper wire. The Professor's lectures will still be useful to explain what their text-books mean, and to indicate relevant facts and principles of scientific experiment. No doubt Dr. Miers would grant so much; and Dr. Butler admits the necessity of examinations. Examinations, indeed, are the serious obstacles, and will be so long as examinations determine so fatefully the future career of the student. True, "the best examinee, even under the present system, is he who has worked most reasonably; in other words, he who has endeavoured to learn as well as to be taught." But this dictum does little more than rule out mere cram; and, when the subject of examination is wide and complicated and time is limited there is but little scope for the independent indagations of the student. After all is said, however — and there is much more to say about the limitations — there are fruitful possibilities in the direction indicated by Dr. Miers, and room for much discussion and experiment. It is also worth consideration whether the principle is not more or less applicable at a still earlier period—that is to say, in the secondary school. In any case, a Revival of Learning in Dr. Miers's sense is devoutly to be wished.

NOTES.

A WAIL over the academic declension of Greek at last reaches us from Aberdeen awa', where Greek has hitherto manfully held the fort. In the closing address of the session to Divinity students, Prof. Nicol enlarged upon the position and prospects of Greek as it affects the studies of the Divinity Hall. The burden of his elegy was: "The position of Greek in the Divinity Hall is becoming precarious." Let us realize the situation. Every Divinity student of the session was a graduate; but "there were several who had not taken Greek for their degree"; "they had not been thinking of the ministry when at school and college; it was only when, at the close of their curriculum in Arts, they felt the call to prepare for the ministry that they realized what was lacking, and it was too late then to turn back and get the want supplied." And worse things are looming in future: "under the new Arts Ordinance it will be possible to take the M.A. degree without either Latin or Greek." Yet "it surely cannot be necessary to insist upon an intimate knowledge of his Greek New Testament as a primary qualification in the occupant of a twentieth-century pulpit." We will not inquire how far the average occupant of a twentieth-century pulpit studies his New Testament in the original, or whether, even if totally ignorant of Greek, he could not obtain all the assistance he needs from translations, expositions, and annotations—all plentiful and excellent. But it may be asked why the Divinity Hall should be relieved of the task of teaching any of its special subjects—why should it not teach Greek just as it teaches Hebrew or Syriac or Church history? And it is such a small matter. With the discipline of a degree course, whatever the subjects, it would be very easy for a student to master enough Greek to follow New Testament exegesis. The Greek Professor, it appears, has "offered to revive the Junior Greek class" to relieve his Divinity colleague's difficulty. Very well; but the idea that the whole of the Arts students, whatever their future career, should be loaded up with Greek from their school days to save a trifling inconvenience to a few chance students of Divinity does seem somewhat narrow and inconsiderate.

THERE is nothing like leather — nothing, except Latin prose. Prof. G. G. Ramsay has taught Latin prose for more than forty years to large classes and by all the methods that pedagogic ingenuity has devised, and so he must be allowed to know the virtues of the exercise. "I have found it," he says (in the course of a contribution of several columns to the *Oxford Magazine*), "incomparably my most

effective intellectual implement as well as the only method of imprinting on the mind those principles of grammar and of syntax which seem unmeaning until required for use, and without familiarity with which appreciative reading and correct writing are alike impossible." Should we ever think of doubting that? Yet what does it prove? Surely nothing more than that Latin prose may be taught by a very capable teacher so as to be an excellent mental discipline. Prof. Ramsay ignores the very obvious fact that any other teacher of any other subject could honestly make a similar avowal on behalf of his own disciplinary material. "A student's progress in Latin prose," he says, "affords the surest index of his mental development as a whole." Yes, to the Latin Professor, but not necessarily to anybody else. The Viennese Professor of Chemistry no doubt spoke the absolute truth when he told Prof. Ramsay that his best students came not from the *Realschule*, but from the *Gymnasium*; and his reason may have been thoroughly sound—"the mind of the classical boy has been better trained." But his inference—"give me a boy's Latin grammar and I will answer for his chemistry"—needs to be examined: it is a long jump from the premises. Latin prose, with all its excellences, can hardly claim to be an unfailing specific for breadth of view or for logical conduct of an argument.

Mr. C. E. Town, Deputy Assistant Secretary for Commercial Education of the London Chamber of Commerce, writes:—

I believe it to be true that handwriting has been neglected as a "subject," and not given its proper prominence as an essential qualification for success in commercial life. It embraces not merely neat penmanship, but constructive and analytical ability, a sense of proportion and balance, regard for accuracy in details and orderliness in their arrangement. Considered in these aspects, a certificate indicating a pass in this subject under the ægis of the London Chamber of Commerce would be a good proof of more than average proficiency. Why, therefore, should not the Boards of banks, insurance and other companies, and commercial houses generally, make it a *sine qua non* for all applicants or nominees for relatively minor positions to possess that certificate? Would not this be a reasonable way of relieving members of those Boards and principals generally of the tiresome task of eliminating the "undesirables" or "inefficients"? It would at least have the direct effect of compelling youths to become proficient in their own time, and not in that of their employers. It may be objected that an examination only held once a year would not meet the requirements of the case. True; but I have little doubt that it would be found feasible to institute a monthly or other periodical examination in this single subject. The means already exist for meeting a well founded grievance; it is for those who suffer from it to decide whether they will adapt those means to their own ends.

Yes; but the difficulty has a vastly wider range. Moreover, plain, clear, readily legible handwriting ought to be, as a matter of course, ensured in every school, and not requiring any special apparatus of examination.

Now that we are getting familiar with the open-air school, Prof. J. W. Gregory, of Glasgow University, summons us all to the fields—not only those of us that go on botanical, geological, or geographical excursions or on modest Nature-study expeditions, but also the stay-at-homes of other studious pursuits. "Field work," he declares (in a *Standard* article, March 7), "should be included in all grades of education—in the infant school, where the children may be taught to map the playground or to track the nearest watershed by observing the flow of water in the gutters of the neighbouring roads; in secondary schools, where the higher classes may be set to more difficult geographical or botanical field work; and at the Universities, where the post-graduate courses or long vacations may be devoted to useful research." The infant contemplating the gutters scientifically is good; the later exercises, if not very closely defined, are not strikingly original. The student of history has much to see afield—at any rate, where his history was made. The practical difficulty is to get him there and back, unless he be an endowed researcher. Even the classical student must up and out; for "the modern revival of classical research has been attributed by one distinguished authority to the adoption from geology and archæology of the method of 'fossil hunting' for classical treasures, and the rich harvest of certain facts that have been thus collected show how greatly practical field work may advance literary studies." By all means let us get out into the fields—if the owners or occupiers will be good enough to allow us; but let us beware of expecting too rich an educational harvest of a new kind. Prof. Gregory's fruitful excursions in Australia were made in virgin areas, and, if there is still abundant scope for field research in this country, the scholars interested are not prevented from doing it by lack of knowledge of the advantages or of eagerness to reap them. The Professor may, however, follow up with a detailed and practical scheme for one or for all of the classes of students that he urges to sally forth into the fields.

Dr. Louis Lubovius, of the Glasgow Provincial Training College, read a piquant paper on the place of "Modern Languages in the School Curriculum (with reference to the present position of German)" before the Secondary Education of Scotland (March 5). He contended that modern languages were entitled to recognition for their disciplinary and cultural value and for their practical utility, and that they should form an organic and prominent part of the curriculum. "As French is fashionable and Latin respectable, while German is deemed neither the one nor the other, the choice of the pupil generally falls between Latin and French."

On what ground, excepting, perhaps, its lack of canonical dignity, was German boycotted? Having regard to the enormous exchange of moral and intellectual, literary, and artistic values that was constantly taking place between Great Britain and Germany, having regard to their commercial relations alone, to the fact that they were each other's best customers, one would reasonably conclude that the German language should be held in as high regard in this country as English was in Germany. Throughout the German Empire there was no scheme of higher education in which English had not a place. More time was devoted to the study of scientific English grammar in German than in English Universities, and more time to Scottish literature than in the Scotch Universities. Pupils in German secondary schools not only learned the English language, they were taught a sympathetic appreciation of English culture—Britain's social and political institutions, her achievements in the various fields of human activity, the foundation and development of her civilization. The lad who left school to devote himself to business had learnt something of the English tone of mind, and had acquired a rational attitude to the people with whom he would come into commercial relations.

The reason for the neglect of German and other modern languages in recent years, Dr. Lubovius thinks, is to be sought not in popular sentiment, but "in the exaggerated veneration for tradition and in the dogmatic faith that the British people have in the infallibility of certain ideas that had become fixed principles," and, among the rest, that of freedom from foreign influence, good as well as bad. The

worst obstacle of all is "the lack of interest on the part of the British people in educational questions." "While America and most of the great countries of Europe look upon education as one of the most important social problems, and see in their schools the centre of national interests, the British people regard education as a matter of pedagogy that has no concern for anybody except the schoolmaster." Dr. Lubovius has had twenty years' experience of us, and is entitled to express his opinion. But how to bring it to bear practically upon the machinery of education?

SUMMARY OF THE MONTH.

The Secretary of State for India has appointed a Departmental Committee "to formulate in detail an organized scheme for the institution in London of a school of Oriental Languages upon the lines recommended in the report of Lord Reay's Committee of 1909." The Earl of Cromer has consented to act as chairman of the committee; and the other members are Lord Curzon of Kedleston, the Lord Mayor of London, Sir Charles Hardinge (Permanent Under-Secretary of State for Foreign Affairs), Sir Charles Lyall (late Chief Assistant Secretary in the India Office), and Dr. H. Frank Heath (Director of Special Inquiries and Reports to the Board of Education, Joint Secretary of the Royal Commission on University Education in London). Mr. P. J. Hartog, Academic Registrar of the University of London, will act as secretary.

Mr. Fred. Charles, Chairman of the Incorporated Society of Assistant Masters, writes to the *Morning Post:*

May I call your attention to an instance of the starvation of education in this country? A scale of salaries has just been adopted for the secondary school teachers of Holyhead. It provides a commencing salary of £100 a year for men, and of £90 a year for women; the first annual increment is £10; subsequent increments are £6 for men, and £5 for women. The maximum for men is £140, and for women, £125; one man may receive £150, and one woman £130. Such a scale, far less generous than that for the Second Division clerkships in the Civil Service, or than that for London County Council clerkships, cannot possibly attract to the schools men of the character and intellectual attainments which alone would fit them to undertake the education of the next generation. Such a scale not only does no good, in that it does not attract men fit for the work which has to be done, it does practical harm to both the school and the master; good work is impossible when grinding poverty is ever present and the future offers nothing but penury or worse.

And further, it is a national matter. The smallest initial salary of a secondary-school master (*Oberlehrer*) in any German State is £120 in Lippe: in that State the salary in the seventh year of service is £175, £25 more than the best paid man at Holyhead can hope to receive; and in the nineteenth year £285, more than double the maximum of all but one man at Holyhead! And this does not take into account the rent allowance of £24 or £30 a year paid to the masters in that German State. Is it reasonable to expect a school with the salary scale of Holyhead to educate men capable of competing on equal terms with those educated where the least generous of all the German salary scales is in force? Is it wonder that there are people who consider that education is doing more for Germany than for England? There are two powers capable of putting a stop to such scandalous starvation: public opinion and the Government.

The *A.M.A.* writes: "On March 1, Mr. Runciman, replying to a question in the House of Commons, stated that the Treasury grant on behalf of secondary education in England and Wales for the year 1909-10, amounted to £791,250. When we compare this with the £402,500 expended in 1905-6, it appears at first sight that secondary schools were being liberally treated. But it would be interesting to know how much of this apparent increase is an increase only in name, the diversion of grants from higher elementary education to the new municipal secondary school. Moreover, £160,000, more than 20 per cent. of last year's total grant, was earmarked 'in respect of intending teachers in elementary schools.' To the further question, what is the amount per pupil in average attendance, Mr. Runciman said he was not in a position to furnish a reply. We suggest that it would be advisable to calculate the average attendance of pupils in secondary schools, and find out the amount of grant per head. The feeling of revolt against the insufficiency of the Treasury grant to schools is spreading among the Local Authorities, and, unfortunately, the teacher is being made to suffer. Leeds, Swindon, Holyhead—here are three towns where attempts have been made to sweat the already underpaid teacher. Are the local Councils hoping that the outcries of the sufferers will touch the departmental heart?"

The Earl of Crewe, presiding over the annual meeting of the Girls' Public Day School Trust (February 23), said he thought they could fairly claim that they still continued to supply a particular want which was not supplied by anybody else. The main feature, of course, of the secondary education of to-day was the extent to which, of quite recent years, the public authorities had taken the matter in hand. Having to a considerable extent the purse of the public at their back they had thereby created a rivalry—an honourable rivalry to which they could not find it in their hearts to object—but still a serious rivalry to the work of the Trust. If it ever should become the desire of the parents of all the girls who were sent to be educated in schools of this kind that there should be nothing but public elementary schools, the Trust would, of course, have to bow to the decision; they would have to part with their schools and make the best terms they could. But that state of things had not arrived. If their work were to come to an end to-morrow, a great many of their girls would attend, not the schools of the Local Authorities, but private schools that were not so well organized nor maintaining so high a standard as those of the Trust. Therefore they continued to supply a particular want; that was the strength of their position. At the same time there was this great creation of public secondary schools, always liable to draw away from their own schools a certain number of girls who otherwise would attend. Their schools were tending to become more and more schools not only for girls of a superior social position, but for girls who were able to carry on secondary education for a longer time, and were prepared to pay somewhat higher fees than most girls. The Board of Education recognized the peculiar value of the work of their schools, and had urged upon them considerably increased expenditure. In that the Trust had to suffer for the higher standard which obtained everywhere, and it had always been quite determined that neither in the character of the buildings nor in the provision of apparatus nor in the quality of the teaching would it fall below the highest standard. All this tended to make the financial position one of a certain degree of anxiety. No one could foresee what would happen precisely in the next thirty or forty years, or how the general system of secondary schools all over the country might affect their profits.

The Froebel Society held a discussion at the College of Preceptors (March 1) on the teaching of needlework, Miss E. R. Murray, Head of the Kindergarten Training Department, Maria Grey College (in the absence of Mr. Frederick Rose, Ph.D., L.C.C.), in the chair. Short papers dealing with the subject at different ages of the pupils were read by Miss Brown-Smith (Mistress of Method at the Goldsmiths' College, New Cross), Miss C. R. Gordon (L.C.C., Organizer of Domestic Economy), and Miss K. M. Buck (Needlework Mistress, Northern Polytechnic Training School of Domestic Subjects). Dr. A. R. Abelson then discussed the subject from the hygienic standpoint. Taking up the new suggestions on the teaching of needlework issued by the Board of Education, he referred especially to the points that the instruction of weakly children should be done with care and that some should be exempted altogether. Care should be taken of children's sight. Children below the age of six could not be taught needlework without risk; and the medical officer should find out which of the children are unfit. He urged that teachers should be allowed a freedom which they do not at present possess—namely, to abstain from teaching needlework altogether at times when the light is bad. The number of teachers that asked questions afterwards proved the interest evoked by the different papers.

Dr. Clouston, Edinburgh, addressing a meeting of Dundee Child Study Society, said he believed that, if they could find a way of improving the self-control of the coming generation, they would do more good than the House of Commons does in fifty years, and he believed it was a quality that could be improved if they went about it in the right way. With the aid of school medical inspectors, the teachers would now be able to apply general rules in specific ways, as at present it was one of the difficulties of the teaching profession that general rules of edu-

cation could not apply to large groups of children. The ideal kind of education would be to sort out the children on certain natural rules, and subject each group to the kind of education and environment that suited its particular brain cell qualities. While that was still in the region of the ideal, teachers were at present endeavouring to individualize their children, and apply the rules of education to the individual instead of to the class in bulk. Environment, by acting on the brain of the child, had a beneficial or bad effect on the child according to the nature of the environment.

Mr. Joseph Edmund Wright, M.A., Fellow of Trinity College, Cambridge, and Professor of Mathematics at Bryn Mawr College, Philadelphia, since 1903, died in the University Hospital, Philadelphia. He was Senior Wrangler in 1900, first in the second part of the Mathematical Tripos in 1901, and Smith's Prizeman in 1902. He wrote numerous papers on a wide range of subjects in the higher mathematics. He was only thirty-two years of age.

Mr. George Frederick Sykes, of the Oxford English Dictionary Staff, died at the age of eighty-one. For some time he was a classical master at Mill Hill School, and for more than a quarter of a century he was Principal of Forest House, Woodford. He joined Sir James Murray at Oxford in 1885.

UNIVERSITIES AND COLLEGES.

Deputation to the Chancellor of the Exchequer.

A deputation representing all the Universities and University Colleges in England, with the exception of Oxford, Cambridge, and Durham, waited on the Chancellor of the Exchequer, at the House of Commons, to ask for increased financial assistance (March 4). It was urged that money was greatly needed for development purposes. The Treasury grants, so far from cutting off local subscriptions, municipal and private, had encouraged them, local people feeling that the institutions were recognized by the Government and regarded as a national concern to which they might well contribute. Every new chair that was established and every new building that was put up meant extra expense for maintenance, and the deputation urged that, while it was quite possible to get the locality to provide buildings and equipment, it could not provide maintenance. Many localities felt they had done all they could, and they also felt they were doing not merely local work, but national and Imperial, indeed worldwide, work. Students were drawn from every part of the Empire and from foreign countries, particularly China and Japan, and they were under no obligation to give their services where they were trained. Any increased grant now given by the nation would be used, not in the fixed and ordinary work of the institutions, but in the highest class of work, and in various enterprises that were being kept back for want of funds. The speakers also pointed out that there was under present conditions a certain amount of wastefulness, not in money, but in brains and energy, because at their meetings the authorities were generally occupied, not in discussing how best to spend the money and what undertakings would be best for the country, but merely how to economize their funds and how to save £10 or £50. Work was lying ready at hand which they were powerless to undertake.

Mr. Lloyd George said that the arguments put before him had his entire sympathy, but he pointed out that the deputation could not have come at a worse time. He promised, however, to consider carefully the arguments advanced, but asked for more information. Acting on his advice, a business committee is being formed which will prepare the required statistics and submit them as soon as possible.

Sheffield.

The Council, at a special meeting, passed the following resolution of regret and condolence:—

That this Council, specially assembled, desires to place on record its sense of the irreparable loss which the University has sustained by the death of Sir Frederick Thorpe Mappin, Bart., one of its first Pro-Chancellors. In him the University has lost a wise counsellor and a steadfast friend. He will ever be remembered as a pioneer of higher education in Sheffield, as one of the founders of the University, and as one of its most generous benefactors. The Council desires to express its sympathy with Sir Frederick's family in their bereavement.

National University of Ireland.

A memorial to the Senate of the National University of Ireland, asking for the recognition of colleges for women in connexion with the University, is being widely circulated through the country for signature by the Irish Women's Education Association. The circular states that a memorial has been presented to the Senate from the Women Graduates' Association, protesting against the recognition by the University of any college for women, and urging the desirability of imposing on all women graduates the system of co-education as a condition of their being permitted to proceed to the degrees of the University. The memorialists consider that the imposition of such an exclusive system would be undesirable in itself, would shut out from the National University hundreds of students whose exclusion was never contemplated by Parliament, and would inflict a grave injustice on those colleges for women which had hitherto worked zealously and with success in the cause of the higher education of women. The council of the Alexandra College, Dublin, recently approached the authorities of Dublin University with the object of obtaining recognition for undergraduate lectures in this well known women's college. The application was approved by the council of Dublin University, but was afterwards rejected by the Board of Trinity College.

Belfast.

It has been decided to establish a Faculty of Technology and Commerce, on the Manchester University method, and to begin the erection of a new block of buildings to accommodate the departments of science, at a cost of £25,000; an extension of the existing medical buildings, at a cost of £8,000; and an extension of the Students' Union buildings, at a cost of £3,000. Plans for the new buildings will be open for competition to all the architects in the United Kingdom.

THE EDUCATIONAL LADDER.

Bedford Grammar School.—Boarding-house Exhibitions of £50 a year: D. F. Coates, Avenue School, Bedford; J. Connor, Fulneck School, Leeds; L. S. F. Dawes, Observatory House, Westgate-on-Sea. School Exhibitions: F. W. Garraway, L. N. Cook, R. L. Walker, E. G. St. C. Tisdall, J. G. D. Weir, G. F. M. Thomson, N. L. Carrington, H. W. F. Farrer, A. G. Bartlett, G. G. R. Williams, D. M. Heriz-Smith, E. F. Tickell, F. J. A. Ealand, J. R. N. Bolton, A. G. A. Hodges.

Beit Medical Research Fellowships (£250 a year for three years): nine men and one woman have been elected, four of them graduates of London University—Mr. E. Hindle, Dr. Thomas Lewis, Dr. S. Russ, and Dr. Ida Smedley.

Cambridge University.—Philip Walker Studentship: William Ray, B.Sc. Oxon., M.B. Adelaide, Rhodes Scholar and Commoner of Magdalen.—Allen Scholarship: R. Whiddington, B.A., St. John's.—Powis Medal for Latin Hexameter Verse: J. R. M. Butler, Scholar of Trinity.—Porson Prize for Greek Iambic Verse: J. R. M. Butler.—Bell Scholarships: (1) A. W. St. Clare Tisdall, Scholar of Trinity; (2) P. G. Bainbrigge, Trinity. Distinguished in the examination: P. R. Frost, Scholar of Clare; R. J. Mortlock Lias, Exhibitioner of Trinity; E. C. Sturdy, Scholar of Pembroke.—Abbott Scholarship: F. G. Chevassût, Trinity, and J. R. Wade, Scholar of Queens', equal.—Chancellor's Medal for English Verse: D. H. Robertson, Scholar of Trinity.

Downing.—Entrance scholarships of £40:—For Natural Science: W. H. F. Armstrong, Carlisle Grammar School; N. Back, Gresham's School, Holt; A. W. Facer, Northampton and County School; P. S. Ham, Westminster School; A. E. Neales, Whitgift School, Croydon. For Classics: M. M. Lewis, City of London School.

King's.—Fellowship: Leonard Doncaster, M.A., A. D. Knox, B.A., and C. K. Webster, B.A.

Magdalene.—Classics: Milner Scholarship, £55, A. F. Kelk, Leeds Grammar School; Exhibitions of £30 each, M. A. Hepburn, Malvern College, and L. H. Stern, University College School, Hampstead. Mathematics and Mechanical Science: Exhibitions of £30, W. Fairley, St. Paul's School; T. J. Y. Roxburgh, Merchant Taylors School; P. K. Lockwood, King Edward VII School, King's Lynn; A. E. Collier, Wellington; and W. E. Whewell, Blackburn Grammar School. History: Exhibition of £30, C. G. Whitfield, St. Paul's. Sizarships: W. R. G. Eustace, Bradfield, and W. E. Woodhouse, Birkenhead.

Selwyn.—Scholarships: G. W. Dunckley, St. Albans School, £40 for Mathematics; R. N. Chubb, St. Albans School, £40 for Classics; H. D. Gawne, Richmond School, Yorkshire, £40 for History; J. F. Webster, Hymers College, Hull, £30 for Natural Sciences. Ratcliffe Exhibition of £27 for Classics: A. S. Bourne, St. John's School, Leatherhead. Exhibitions of £20: for Mathematics, J. B. Harris, Devon County School, and H. R. Howard, Queen Mary's School, Walsall; for Classics, G. D. Gurnhill, Denstone College, and C. H. Joscelyne, Rossall School; for Natural Sciences, H. A. Hendrie, St. Olave's Grammar School.

Franco-Scottish Society.—Bursaries, £30: William J. Fortune, Aberdeen University; Jessie M. H. MacCaig, Edinburgh University; Agnes Leslie Anderson, Edinburgh University. Honourable mention: five candidates. The Bursars must study French in France for three months.

London University.—Mitchell Studentship (for investigation of some definite feature of business or industrial organization): John Hedley Higginson, B.Sc., London School of Economics.—Gilchrist Studentship: Mary T. Fraser, B.Sc., South Western Polytechnic Institute; *proxime accessit* Isabel H. W. Lawrence, B.A., Bedford College for Women.

University College.—New Fellows: F. A. Cavenagh, M.A., Assistant Master, Blackpool Grammar School; A. T. Shearman, D.Litt., Lecturer on Advanced Logic and the History of Psychology at the College; L. A. Willoughby, Ph.D., Taylorian Lecturer-Elect in German in the University of Oxford; J. E. Petavel, F.R.S., Professor of Engineering and Director of the Whitworth Laboratories, University of Manchester; R. W. Gray, Ph.D., Assistant Professor of Chemistry in the College; Miss Marie C. C. Stopes, D.Sc., Ph.D., Lecturer in Fossil Botany, University of Manchester; H. M. Woodcock, D.Sc., Assistant to University Professor of Protozoology; S. G. Shattock, F.R.C.S., Curator of the Museum of St. Thomas's Hospital and Pathological Curator of the Museum of the Royal College of Surgeons; J. H. Parsons, D.Sc., F.R.C.S., Lecturer on Physiological Optics at the College.

Oxford University.—Beit Prize: J. B. Black, Balliol.—Robert Herbert Memorial Prize: H. A. Smith, B.A., St. John's, and J. A. Estey, B.A., Queen's, equal; honourably mentioned, R. H. Hill, B.A., St. John's.—Passmore Edwards Scholarship: L. W. Hunter, B.A., New College.—Arnold Prize Essay: not awarded.—Denyer and Johnson Scholarships: (1) Gerald B. Allen, Wadham; (2) not awarded.—Pusey and Ellerton Scholarship: Gerard R. Taglis, B.A., Keble.—Radcliffe Travelling Fellowship (£200 for three years): Ernest L. Kennaway, B.Sc., M.A., Hulme Research Student of Brasenose.—Canon Hall Greek Testament Prizes: Senior, Horace Marriott, B.A., Keble; Junior, S. H. Hooke, Exhibitioner of Jesus.—Hall-Houghton Septuagint Prizes: Senior not awarded—recommended for a gift of money, H. Marriott, B.A., Keble; Junior, W. F. Phillips, Jesus, and H. Danby, Scholar of Keble, equal.—Houghton Syriac Prize: not awarded.

Balliol.—Jenkyns Exhibition (£100 a year): Ronald A. Knox, Scholar of the College; *proxime accessit* (special prize of £50) Arnold J. Toynbee. Distinguished in the examination: Druce R. Brandt, Exhibitioner; Patrick H. Stewart, Scholar; and Robert Gibson, Exhibitioner—all of Balliol.

Brasenose.—Day Training College Exhibition:—John Campbell, Bede Collegiate School, Sunderland. Junior Hulme Scholarship for History: A. J. Dawe, Berkhamsted School. Open Classical Scholarship: H. Broadbent, Manchester Grammar School and University.—Hulme Exhibition: F. C. Atkin, Kingswood School, Bath.

Christ Church.—Open Scholarship in Mathematics: F. W. Turner, Sheffield Central Secondary School.

Corpus Christi.—Scholarship in Natural Science: C. S. Bryant, Wilson's Grammar School, Camberwell.

Exeter.—Classical Exhibition for Divinity: Guy Charles Dunlop Hill, Dean Close Memorial School, Cheltenham.—How Exhibition: Richard Hutton, Marlborough College. Stapledon Scholarship for Natural Science: T. A. Brown, Plymouth College.

Jesus.—King Charles I Exhibition: T. R. Godfrey, Victoria College, Jersey.

Keble.—Scholarship in Natural Science: Owen Sherwood Phillips, Royal Grammar School, Worcester.

Magdalen.—Mathematical Demyship: Archibald Allan Hopper, St. John's School, Leatherhead.—Mathematical Exhibition: James Sunderland, Manchester Grammar School.

Merton.—Open Postmastership in Classics: James H. Barnes, Manchester Grammar School.—Exhibitions in Classics: Richard Hutton, Marlborough College, and Roger T. Pollard, St. Paul's School. Postmasterships in Natural Science: George Carruthers, Camberwell Grammar School, and Percy Worthington, Harrow School.—Postmastership in Modern History: Desmond F. Young, Rossall School. Exhibition of £80 in Modern History: Archibald H. Kemm, Radley College.

New College.—Scholarship in Natural Science: H. G. Champion, Commoner of the College.

Pembroke—Townsend Scholarship: Godfrey Davies, Chipping Campden School.—King Charles I Scholarships: Cecil C. Labey and J. H. S. Moxly, Victoria College, Jersey.—Dorothea Wightwick Scholarship: G. H. A. Watson, Cheltenham College.

Oxford: Mansfield College.—Daniel Jones Fellowship (£200, for three years): H. E. B. Speight, M.A., Assistant to the Professor of Logic, Aberdeen University.

Uppingham School.—Scholarships: £70, C. R. B. Wrenford (Rev. F. D. Browne, Lambrook, Bracknell), R. S. G. Vigers (Mr. J. C. Thomson, Horton School, Ickwell Bury), and R. T. Harmer (Mr. M Roderick, Pretoria House, Folkestone); £50, R. S. Wilkie (Mr. F. Middlemist, All Hallows School, Honiton) and C. Whitehead (Mr. E. J. Johns, Winton House, Winchester); £30, J. S. Martin (Rev. E. H. Earle, Bilton Grange, Rugby) and J. K. Kirkbride (Mr. F. A. B. Fletcher, Riverlyn House, Hoveringham).—"Rutland" scholarships: F. H. Hodgkinson and D. V. M. Mansel-Carey (Uppingham School).

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, on March 16. Present: Rev. Dr. Scott, Vice-President, in the chair; Prof. Adams, Dr. Armitage Smith, Mr. Bain, Mr. Baumann, Rev. J. O. Bevan, Mr. Easterbrook, Mr. Hawe, Mr. Holland, Rev. R. Lee, Prof. Lyde, Mr. Marx, Mr. Millar Inglis, Mr. Pendlebury, Mr. Pinches, Mr. Starbuck, Mr. Storr, Rev. J. Twentyman, Mr. Vincent, Mr. Walmsley, and Mr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported that, in accordance with the resolution passed at the meeting on February 19, a circular letter had been sent to all members of the College residing in the United Kingdom, inviting suggestions with regard to the extension of the work of the College, and that many replies had already been received. It was resolved that the suggestions should be referred to the Education Committee for consideration and report.

He reported that the Professional Preliminary Examination had been held on March 1 to 3, and had been attended by 364 candidates.—Examinations for Certificates of Ability to Teach had been held on February 26 and March 5, and the thanks of the Council were voted to the head master of the Mercers' School, Holborn, for affording facilities for holding the examinations at that school.

He reported that arrangements had been completed for holding the Examinations of the Newfoundland Council of Higher Education in June next. The Examinations would be held at 128 centres, and the total number of candidates was over 3,700—an increase of about 600 as compared with the examinations held last year.

Diplomas were granted to the following, who had satisfied the prescribed conditions: *Licentiateship:* T. W. Wardhaugh, J. C. Wightman; *Associateship:* P. Elliott, Miss L. L. Enderby, ~~Miss~~ Mrs S. Robinson.

A representative was appointed to attend a Conference convened by the Secondary Schools Association, to be held on April 6, when there would be a discussion on "The Future of Endowed Schools in National Education," to be opened by Prof. M. E. Sadler.

In accordance with recommendations of the Examination Committee, the Council appointed Mr. H. W. Eve one of their Inspectors of Schools, and instructed the Secretary to advertise for an additional Examiner in Chemistry. They also decided that after the current year "Eutropius" should be removed from the list of alternative subjects in Latin for the Third Class Examination.

It was referred to the Education Committee to consider the position of private schools in relation to the public authorities.

The following persons were elected members of the College:—

Rev. S. G. G. Aitchison, Harding, Natal, South Africa.
Mrs. F. Giller, Lynmouth College, Leytonstone, Essex.
Miss A. J. Smith, Lynmouth College, Leytonstone, Essex.
Mr. G. S. Smith, B.Sc. Lond., F.C.P., 291 Great Clowes Street, Higher Broughton, Manchester.

The following were admitted to the privileges of membership, under Section II, cl. 5 of the By-Laws:—

Mr. F. W. S. Brabham, A.C.P., Belmont House School, Wells-next-Sea, Norfolk.
Mr. E. V. W. Köster, A.C.P., Manor House, Manningham, Bradford.
Mr. R. H. Simmons, A.C.P., 140 Kenyon Road, Wigan.
Mr. T. W. Wardhaugh, B.Litt. Durham, L.C.P., 81 Derwent Road, Palmer's Green, N.

The following books had been presented to the Library since the last meeting of the Council:—

Calendar of the University College of Wales, Aberystwyth.
Medical Register, 1910.
Dentists' Register, 1910.
By Methuen & Co.—Dobbs's Weighing and Measuring.
By J. Murray.—Poole and Lassimonne's Textes et Questions (Classes Avancées), and Moreau's La Souris Blanche.
By the Oxford University Press.—Kirk's Questions on the Oxford Senior Geography; Lowe's Caesar in Britain; Nicklin's Livy, Book IX; Tozer's Byron's Childe Harold, III–IV.
By Rivingtons.—Crump's Selections for Dictation.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION.—PASS LIST.

MARCH, 1910.

THE Professional Preliminary Examination was held on the 1st, 2nd, and 3rd of March in London, and at nine other local centres—viz., Birmingham, Bristol, Cardiff, Edinburgh, Inverness, Leeds, Liverpool, Manchester, Newcastle-on-Tyne. The following obtained Certificates:—

First Class [or Senior].

Pass Division.

Attenborough, J. H. *e.* Morgan, C.
Wacher, H. S.

Second Class [or Junior].

Honours Division.

Bunting, D. M. Marshall, J. M. M. *a.f.*
Coe, W. E. *al.f.* Miles, M. W. H. *a.*

Pass Division.

Ambler, R.
Amson, T.
Ascott, V. J. D.
Bado, A. J. *sp.*
Barlow, N. A. H.
Barrett, W. F. *f.*
Bird, R.
Brewer, O.
Brown, B. *a.*
Buckley, H. H.
Bull, W. M.
Burt, A. E.
Byers, J. A.
Cardwell, C. E. *a.*
Clegg, J.
Colbeck, W. C. *g.*
Curtis, H.
Denton, A. E.
Dutfield, D.
Evans, N. L.
Farquharson, W.
Fisher, H. V.
Germain, E. R. *a.*
Greene, G. R.
Haines, H. Y. *f.*
Harding, G. H.
Harlock, H. S.
Harvey, F. J.
Hearnden, W. R. G.
Herdman, G.
Hines, C. P.
Hoyles, H. S.
Husbands, H. R. W.
Irvine, J. W. *a.*
Isaac, Miss S. M.
Jessop, P. E.
Jones, P. H.
Klosz, R. L.
Kolligs, F. F. *g.*
Lavender, W. A.
Lawrence, G. R.
Learoyd, C. G.
Lindeman, S. J. L.
Lurey, L. *al.gm.f.*
Markham, G. H.
Marriott, F. K. *f.*
Marston, L.
McEwen, G. F.
McSwiny, P. M.
Moore, H. S. H. *ge.*
Nealon, G. R.
Ng-a-Fook, F. J.
Ord, G. *g.*
Peckover, L. E. C.
Pestana, J. V.
Platts, D. J.
Reynolds, D. R.
Richards, G. V.
Robert, E. L.
Robert, V. W.
Roberts, T. S.
Savery, W. M.
Siddons, V. D. *a.al.*
Simons, G.
Smith, D. M.
Smith, J. T. *a.*
Speak, J.
Spencer, S. E. *a.*
Stivala, R. A.
Tegetmeier, E. B.
Torkington, F.
Varvell, J. K.
Walker, H. W.
Watkinson, A. A.
Wells, C. *f.*
White, G. A. O.
Wilkinson, W. O. *a.*

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic. *g.* = Geography.
al. = Algebra. *ge.* = German.
e. = English. *gm.* = Geometry.
f. = French. *sp.* = Spanish.

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH.

The following is a list of the successful candidates at the Examination held in February, 1910:—

Class I.

Whitebrook, J. C. | Willott, D.

Class II.

Lewis, W. W. P.

CERTIFICATE AND LOWER FORMS EXAMINATIONS, CHRISTMAS, 1909.

LIST OF SUCCESSFUL CANDIDATES AT THE LOMAS DE ZAMORA CENTRE.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a = Arithmetic, *g* = Geography, *sp* = Spanish.

The small figures [1] and [2] prefixed to names denote that the Candidates were entered for the First and Second Classes respectively.

BOYS.

SECOND CLASS (OR JUNIOR)—PASS DIVISION.

Pearson, A. W. *g. sp.* Lomas Academy.
[1]Donaldson, T. W. Lomas Academy.

THIRD CLASS—HONOURS DIVISION.

Pelleus, A. C. *a.sp.* Lomas Academy.

THIRD CLASS—PASS DIVISION.

[2]Errecalde, M. *sp.* Lomas Academy.
March, A. E. Lomas Academy.

The following candidates passed the Lower Forms Examination:—

Burton, S. W. Lomas Academy.
Pownall, J. Lomas Academy.
Shardlow, E. C. Lomas Academy.

THE TRAINING AND CERTIFICATION OF TEACHERS.

A CONFERENCE of the Principals of Training Colleges and representatives of the Executive of the National Union of Teachers was held at the offices of the Union, Bolton House, Russell Square, W.C. Some forty colleges were represented, and letters of regret for inability to attend and expressing sympathy with the objects of the conference, were reported from several other college principals. The following questions were considered:—(1) degree course students in training colleges—the attitude of the Board of Education; (2) the employment of ex-students; (3) the discontinuance of the Acting Teachers' Examination; and (4) examinations qualifying for admission to a training college.

Mr. F. Roscoe, Head of the Men's Training Department, Birmingham University, dealt at length with the difficulties experienced under the present regulations with respect to the certification of students who take a degree course in College, and the unfair manner in which such of those students who are unfortunate enough to fail in their Final Examination are treated as compared with the student that takes the ordinary course. Mr. Roscoe was followed by the Rev. Dr. Workman (Westminster College), Dr. Richardson (Southampton University College), Mr. G. R. Scott (Oxford University), Dr. Fletcher (Cambridge University), Mr. Gettings (Liverpool University), and others, including several representatives of the residential colleges. The following resolution was adopted by the Conference, on the motion of Sir H. R. Reichel (Bangor University College):—

That, in the opinion of this Conference, it is neither just nor conducive to educational efficiency that failure to pass the Final, or alternative University Examination in University work, as prescribed by the Board of Education for second- or third-year students, should necessarily place the student in an inferior position for gaining the certificate to others who have done less work and passed less severe examination tests.

On the suggestion of the Rev. Wesley Dennis (St. John's, Battersea), the Conference appointed a Sub-Committee consisting of representatives of the various types of colleges and of the N.U.T. Executive to consider what steps can best be taken to collect information, and to suggest immediate action, in reference to the special pressing difficulties in the training and certification of teachers.

The Rev. Prebendary Hobson (St. Katherine's College, Tottenham) dealt with the difficulties experienced by trained certificated teachers in obtaining employment, and stated that one-sixth of the students who left the training colleges in 1908 were still out of employment twelve months afterwards, when the 1909 students were leaving college. Mr. Allen Croft (Chairman of the N.U.T. Education Committee) pointed out that the difficulty was greatly accentuated by the Board of Education flooding the market each year with thousands of teachers who had not been to college, but became certificated at the examination annually held by the Board of Education, and known as the "Acting Teachers' Examination." Further, the schools were largely staffed with non-certificated teachers, many of whom had no professional training whatever, and these imperfectly qualified teachers filled the places which should be occupied by those who had been properly trained for their work. In the opinion of the N.U.T. Executive, the time had arrived when all teachers should be required to go through a course of college training as a condition of certification. On Mr. Croft's motion, the conference resolved:—

That the present abundant supply of trained certificated teachers justifies the demand for—(*a*) the abolition of the Acting Teachers' Examination; (*b*) the gradual restriction of employment in elementary schools to certificated teachers.

The proceedings concluded with a vote of thanks to the N.U.T. Executive for convening the Conference and to the President (Mr. C. W. Hole) for presiding.

ESPERANTO: ITS POSITION AND PROGRESS.

By Miss E. A. Lawrence,
Hon. Life President, London Esperanto Club.

In the present days of rapid transit from place to place, there is no longer room for a discussion as to whether a common tongue to be used extra-nationally is necessary. Neither is this the place to discuss whether that language should be a national or a so-called artificial one. My purpose is simply to describe the already existing international language known as Esperanto, and to give some idea of the progress it is making in practical use. While the Franco-German war was brewing in near Eastern Europe, a Polish schoolboy, in a Russian frontier town in which four nationalities occupying four sections were engaged in incessant quarrellings, was pondering over the question of their difficulties, and the need of a language mutually understandable. The idea grew with his growth. He thought of Latin first, and discarded it—something more free and living was needed. Knowing German and Polish from babyhood, English was one of the last languages he studied before going to college, and the simplicity of its grammar and system of word-building fascinated him. Gradually this boy, Ludovic Zamenhof, evolved a language system containing about nine hundred roots, and this he practised privately and with his college friends, talked over and lived with, until he wrote and spoke it as his mother tongue. Meanwhile, he was qualifying as an oculist, and so, when, after pathetic struggles and difficulties, he finally published the scheme in 1887, he, for professional reasons, did not dare do it under his own name, and copies of his early publications are to be found in the British Museum under the heading, "Dr. Esperanto." That same year, Richard Geoghegan, Chinese scholar at Oxford, saw a newspaper notice about the new language, and wrote to Dr. Zamenhof in Latin, receiving a German instruction book in reply, and from then until the present day Mr. Geoghegan, though now in the wilds of Alaska, has been ardently active in the promotion of its use.

The Esperanto alphabet consists of twenty-eight letters. Less would hardly suffice to render the most important vocal sounds of the chief languages of the world. Four letters of our English twenty-six (*q*, *w*, *x*, and *y*) are omitted as redundant, for Esperanto is phonetic—one letter, one sound. The surplus six letters of its alphabet represent common sounds which in most European languages are denoted by consonantal combinations. These combinations Dr. Zamenhof, instead of resorting to some unfamiliar phonetic expedient—such, for instance, as the signs adopted by the International Phonetic Association — decided, with the practical common sense which has marked his great linguistic work, to distinguish by means of an accent placed over certain of the ordinary letters. In this way Poles, Hungarians, French, English, &c., are not confronted by letters of unknown form—a fact of importance, for Esperanto was not designed for the very learned, who, knowing several tongues, do not so keenly feel the need of it, but for the unlearned, who are debarred from ordinary language study by lack of time and money. Thus, the Esperanto symbol for "garden" resembles the English word in *form* and yet is also familiar to the Frenchman by its *sound*, for the accented *ĝ* is pronounced like the French *j*. Parts of speech are indicated by final vowels. One root, by the use of affixes, is made to serve many purposes. From the root *san* (giving the idea of "health") eighty or more words can be formed—*sanejo* (a healthy place), *sanema* (inclined to health), &c.

The roots themselves are chosen on the principle of the greatest internationality. For instance, *modesta*, *roso*, *agrabla*, *danci*, &c., are common to five or six nations. Our English "telegraph," "telegram," "theatre," and many such words, are already international and need only be given an Esperanto garb by being phoneticized and supplemented with the requisite grammatical ending — *telegrafo*, *telegramo*, *teatro*, &c. Verbs are always regular (a boon indeed!) and have, in addition to the participial forms, six characteristic endings only. The accent is invariably on the penultimate syllable. The whole grammar is comprised in sixteen short binding rules, supplemented by such simple, practical directions as to the use of prepositions, adjectives, and adverbs as have been found necessary. Esperanto thus combines simplicity, regularity, and flexibility. Every Esperantist International Congress or gathering (and they are monthly more numerous) witnesses to the fact that people of different tongues from every quarter of the globe can use it with facility and comprehend each other. Naturally, in the early years, the Russians and Czechs were the first to adhere in great numbers—indeed, the first *Adresaro* (collection of names and addresses) shows but few other nationalities. Dr. Zamenhof had spread his net wide, the promise to learn the language being so couched that only when ten million others should have pledged themselves would it be binding, and, naturally, the idealists promised unconditionally. Next a German or two and a few Swedes sent in their names, and, before the end of 1896, France had also sent many, Portugal a few. The first distinct analysis of nations appeared during 1900, in which year five English, about fifty Austrians, eleven Belgians, four Brazilians, three or four each from Germany, China, Spain, Holland, Iceland, Italy, Norway, Rumania, a Swiss, and two Americans sent in their names, the rest of the five hundred or so coming from Russia, Bulgaria, France, and Sweden. Now, scarcely ten years later, it is no longer possible to reckon individuals. We have to count in groups, the enumeration of which alone takes more space than did the lists of individual adherents in the early years. At the present time America and Germany, as usual, are rapidly taking the lead, contributing as many as 125 and 115 new groups in a single year.

All this progress has been made so quietly, in so unnoticed a manner, that it is difficult to realize that it is hardly twenty-one years since there appeared the first Esperanto magazine, *La Esperantisto* (the issues of the first few years may be seen in the British Museum reading room) whilst now there are more than eighty-seven journals, representative of many specialist activities and practically every nation of importance in the world. Esperanto literature, translated and original, has been growing in the same way. The first little story was a translation of Puschkin's "Snowstorm." The last, at the moment of writing, is Stevenson's "Dr. Jekyll and Mr. Hyde." Imagine a Japanese and Rumanian having our treasures thus unlocked to them, we in return getting views of national life from such authors as Eliza Orzeszko or Hendrik Conscience, otherwise inaccessible to English readers.

Literature, however, is a side issue. Most people ask, of what practical use is Esperanto? Can we find Esperantists wherever we want to go? Not quite, yet. Railway porters, policemen, shopkeepers, hotel keepers, doctors, the clergy, scientists, and so on are learning the language; but the world is large, and absorbed in the immediate struggle for bread and cheese. Nevertheless, the official Yearbook of the Universal Esperanto Association, a rapidly growing body founded two years ago to facilitate the practical use of Esperanto, contains the names and addresses of over six hundred consuls, from whom information of every kind can be obtained. For example, should an Esperantist desire to make a journey abroad, all that he has to do is to send a request beforehand to the Esperanto Consuls or delegates in the various towns where he wishes to stop, and he will find friendly people waiting at the station to welcome him on his arrival, with his lodging at a small cost already arranged for; and, indeed, the whole affair more like a series of happy home-comings than the lonely jumping-off in strange and outlandish places such as the ordinary tourist has to be content with. Nor is this the case in the large towns only. Even the quaint, more outlying, unvisited districts of Europe have, many of them, already these organized helpers.

In regard to commercial advantages it is the same. All sorts of inquiries, be they about coal, boot polish, lead pencils, attar of roses, or fishing hooks, are made and replied to. But can all this be done, does some one say, with only the nine hundred or so original roots of the language? Not exactly. Technical dictionaries have been in steady process of formation for years, numerous technical articles have appeared in the *Internacia Scienca Revuo*; and now, with this already broad basis as a foundation, quiet specialist workers, discussing terms in each country and making majority decisions nation by nation, are gradually and systematically amplifying them to more ambitious detailed requirements. The approved terms are forwarded to the Central Scientific Bureau at Geneva, where again a similar process of sifting goes on, this time in cases of discrepancy amongst the elected terms received from the various national collaborators. Dr. Zamenhof only laid the foundations; the edifice itself has had the brains of many in the rearing. Nor has it been raised without shocks and accidents. From time to time, notably in 1894 and 1907, attempts have been made, chiefly from outsiders, to induce Esperantists to change their language for a supposed more polished exquisiteness, or to sacrifice common sense to a will-o'-the-wisp perfection, and each time it has been realized that

polish and perfection may be charming, but strength and convenience are of more practical value.

Thus, though the expansion has been, and is, unlimited, the fundamentals of the language remain unchanged, so that, while one can to-day read with pleasure and profit all that has been written these last twenty-three years, one can yet with equal ease follow intermediate and recent productions, or utilize the language to translate some abstruse modern medical work.

Probably those most grateful for the advantages which Esperanto gives them are the blind. In place of the previous limited production of Braille books in many languages, in small editions at prohibitive prices, and useless outside the nationality in whose language they were printed, one has to-day a single large Esperanto edition, accessible at a low rate all over the world. This is indeed a great boon to our blind brothers and sisters, accompanied as it has been by the immense widening of their mental horizon consequent upon the great facilitation of international correspondence which has followed the introduction of Esperanto.

In regard to the diffusion of Esperanto among schools and scholars, much more has been done on the Continent, and especially in France and Germany, than in Great Britain. In France, Esperanto has already been placed on the official curriculum in several elementary schools, and the recently founded "Society for the Propaganda of Esperanto among Young People" includes among its members scholars and teachers representing already some twenty prominent French *lycées* and colleges. In Germany, out of a total of eighty-five Esperanto societies existing in Saxony alone, thirty or so have teachers and head masters of schools as their presidents. An English branch of the Young People's Esperanto Society was established a few days ago, and it is anticipated that considerable numbers of boys and girls will become members.

Lack of space precludes a more detailed setting forth of the present actualities and prospects of this world-wide movement; but any who care to investigate the matter more fully may obtain further information by writing to "Kronikisto," c.o. British Esperanto Association, Incorporated, 133 High Holborn, London, W.C.

THE REGIONAL METHOD IN GEOGRAPHY.

A JOINT Conference on the teaching of geography in schools, arranged by the Geographical Association and the Federated Associations of London Non-Primary Teachers, was held at the Polytechnic, Regent Street, on March 12, when Mr. H. J. Mackinder, M.P., gave an address on "The Regional Method in Geography." After a brief account of the historical development of the subject, he sketched a four-year course of geography for secondary schools, in which he showed that the treatment of the subject-matter must be regional, progressive, and concentric. The study of the home district in the first year of the course, and the acquisition therein of the fundamental concepts or "alphabet" of geography, should lead in the second year to the study of climatic conditions and human activities in the region of the British Isles. In the third year, the pupil should be led to apply his knowledge to the European continent; in the fourth year, to the countries of the whole world. Throughout the course, correlation with other subjects was essential, and a knowledge of elementary geology, elementary physics, and history—*Weltgeschichte*—must be postulated before the geography teacher could with success carry out his scheme. By means of such a course as this, the pupil would be led to connect cause and effect, to correlate human interests and physical forces in different parts of the world, to realize the play of political forces, and to develop the power of thinking in terms of the world. The shrinking of the majority of people from contact with large intellectual ideas, and their love of the small, concrete, and visible, were largely due to their lack of training in the power to roam in thought over the world surface, to grasp world forces, and to realize the movements of millions in history. Geography taught on the broad lines indicated would help to give the power of seeing swiftly and truly the relative importance of the facts around us, and of rejecting ruthlessly all but those that were essential to our scheme of thought. A democracy such as ours could retain its power only if its leaders could with intellectual ease and sureness realize the existence of worldwide forces, and estimate truly their interaction in every part of the Empire.

THE TRAINING OF THE CHILD.

A PLEA FOR INSTRUCTION IN THE ART.

> There is no more certain way under the sun for the raising of sunken humanity than the proper education of the young. . . . If . . . each man have the welfare of his own children at heart, and if that of the human race be dear to the civil and ecclesiastical guardians of human affairs, let them hasten to make provision for the timely planting, pruning, and watering of the plants of heaven, that these may be prudently formed to make prosperous advances in letters, virtue, and piety.—COMENIUS.

ALL who take an interest in the education of children cannot but notice the haphazard, unmethodical way in which, too many of them are brought up. This lack of method is, perhaps, especially noticeable in the homes of the working class, though it is by no means confined to this class, and it is more excusable here than in the more leisured classes. The result of this non-method is most evident in children who have not been subjected to school discipline.

Our "civil and ecclesiastical guardians of human affairs" realize that, for the well-being of the State, it is necessary for the children of this country to be taught a certain amount of book-learning. For this reason, care is exercised that the instruction given in the schools may be good. But, so far as I know, no provision is made to ensure the proper training of children before they reach the school age and in the home after school hours. The importance of this stage of education cannot be denied, if it be remembered that much more time is spent in the home than in the school, and, also, that, during the first few years of a child's life, it is silently learning, and its character is being imperceptibly formed. This growth of knowledge and character may be "slow," but it is also "sure."

It is worse than foolish to waste these precious years of a child's life when they might be turned to such good account. Parents are apt to say, when speaking of their child's faults, that he will "get them knocked out of him at school," and that he will learn to act differently then. This should not be so. School life should not be a sudden change, a rebeginning, of life and habits; it should be a continuation of, and an advance on, the earlier life and the habits and knowledge learnt in the home. Not only is it difficult for a child to unlearn old habits, but this unlearning retards the progress of fresh knowledge. "The moral disposition in which the pupil arrives at school, the thoughts and habits which he brings with him from home and from the social order in which he moves, must necessarily affect his power of profiting by what his schoolmasters have to teach him." Too often, the "habits which he brings with him from home" are bad habits, the seeds of which have been sown by those whose duty it was to root out the weeds.

Instead of talents and virtues being encouraged at home, they are often repressed. For example: children of inquiring minds are frequently bidden not to ask so many questions; or they are put off with statements which are more or less false or which are incomprehensible to them. This is not the way to teach a child to desire and to acquire knowledge. Again: children are sometimes threatened with heavy punishments which there is no intention of fulfilling. Such a threat as, "I will kill you if you are not good," is sometimes used. The "Bogey Man" is another favourite expedient of unthinking people. Threats like these cannot fail to have a bad effect on a child's character. At the time, they may have the desired effect of frightening the child into doing right; but, sooner or later, he will grow to doubt the veracity of such statements, and they will not have even a good temporary effect; while the after results must certainly be wholly bad. By such means, children are not encouraged to love truth, and their faith in grown-up people is shaken. Another senseless habit, which is very commonly taught to children, is that of striking or scolding the furniture, floor, or anything against which they may hurt themselves. This is surely teaching the habits of passion and revenge, instead of fostering those of self-restraint and kindliness.*

* It is interesting to recall that the desire of retaliation against the offending thing itself developed one of the curious chapters in the history of law. In Exodus (xxi, 28) "if an ox gore a man or a woman that they die, then the ox shall be surely stoned." The Greeks cast beyond their borders inanimate things that had caused death. The principle, in one form or another, is manifest in Roman and in Germanic law. In English law there was the deodand, and to this day there is the individual liability of a ship. See Holmes, "The Common Law," Chapter I.—ED., *E.T.*

Many more examples might be given, but they would be useless. They, who have noted the training of children, must know already the need there is for improvement in this stage of education, whilst they, who have not seen examples in real life, are not likely to be convinced by written ones.

Much of this unmethodical upbringing of children is due, I feel sure, more to ignorance, than to carelessness or laziness, on the part of the parent or nurse. Doubtless, there are some who know better, but who fail to turn their knowledge into practice, simply because they are selfish and do not care to exert themselves. On the other hand, there are many who really wish to train their children rightly, and who work to the best of their ability to do so, but who cannot succeed because they themselves have received no methodical training. They may try, one after another, various systems of training, but this want of continuity in the method cannot have a good effect on the child; several of its years, as well as much energy of the instructor, are wasted.

In this stage of education, as in all others, there can be method; and there must be method if it is to be successful. Comenius, a sincere thinker of the seventeenth century, thought method in the home training was so necessary that he wrote a book especially for the guidance of those who teach in the "Mother School." He constantly urges the importance of this education and the necessity for method in it.

It is true that Comenius's greater contemporary, Milton, in his "Tractate on Education," has written nothing upon this subject. This is not, however, because he ignores it. In concluding, he says that, for the sake of brevity, he has not begun his account of education "as some have done, from the cradle, which yet *might be worth many considerations*."

It may, perhaps, be asked if I expect Baby Schools to be supported by the country, or laws for the inspection of the home training to be passed. To this I reply emphatically, No. It is neither to be expected, nor is it desirable. The home should be the first house of education, and we do well to guard jealously the privacy of our homes.

This improvement in home training can hardly be obtained by legislation; but much might be done by the Government, through the agency of County Councils and other public bodies, by drawing attention to the necessity for method in the early training of children, and by encouraging the study of this method. The rising generation is most under the influence of the State whilst attending the Government schools; but, at this age, children are far too young to understand the art of discipline and teaching. The evening and continuation classes, controlled by the County Councils, seem to offer a fitting opportunity for this study. At these classes, lessons in various arts and sciences are already given. But there can be no more useful art or science than that of training children.

It would, of course, be impossible in a short course of lectures, such as is usually given in these classes, to go thoroughly into the subject. But, if the main lines of a building be correct, the whole will not be far amiss. If those who have the care of children could be roused to a sense of their great responsibility, much would have been done. If they could be made to realize the evils of unmethodical training they would be eager to gain further knowledge of the right methods. Suggestions for teaching in an easy way might also be given. Some of the most simple devices are neglected because they are unknown. Comenius suggests that children should be taught to write by means of tracing paper and a pencil. How many parents do this to-day? It is doubtful if sufficient use be made, even now, of picture-books. Comenius was the first to introduce these; his "Orbis Pictus" was the first of its kind.

There are many ways in which children may be kept happily, and at the same time usefully, employed: as kindergarten lessons clearly prove. It should be the lecturer's duty to describe some of these ways. It should be pointed out, also, how a solid foundation for all the after knowledge may be laid in childhood. Printed books are, and should be, mostly closed to them at this age; but the book of Nature lies open to them, and they might learn from it much more than is usual now. "Men must, as far as possible, be taught to become wise by studying the heavens, the earth, oaks and beeches, but not by studying books—that is to say, they must learn to know and investigate the things themselves, and not the observations that other people have made about the things." If it be necessary to emphasize the truth that, in the case of men, more may be learnt from Nature than from books, it is still more necessary in the case of children. Often, it would seem to be the chief aim of a parent to teach a child to read books, rather than to fit it for understanding and profiting by that which it shall afterwards read. It must never be forgotten that book learning is not in itself an end, but only a means. To *live* aright, not to *know* much, should be the aim and end of all education. To teach a child to read books before it has grasped the elementary facts of life and Nature, can only result in filling its mind with unmeaning phrases and parrot-like knowledge. Time will have been gained if the child be kept back from the study of books, and encouraged in the practice of reasoning and observation, if the practical knowledge precede the merely theoretical. The knowledge of things must come before the knowledge of words, or the latter will be useless. Let it be demonstrated to parents that the rudiments of this knowledge of things can profitably be taught to young children in their homes. "The first thing obvious to children is what is *sensible*, and that we make no part of their rudiments."

It might be advisable to include in the lectures one or two on slight childish ailments and their remedy. These would prove useful to those who are unable to attend a full course of Sick Nursing Lectures.

There are, of course, books written on the subject of method in training, and these might be studied by those desirous to know more of it. This might be urged as an objection to the necessity for classes in child training. It must, however, be remembered that books are written on other subjects also, and yet lectures are given on these subjects and they have good results. It may also be objected that the lectures are not likely to be well attended; for it is not every one that has, or can hope to have, the care and training of children; and they who have learnt to feel their need of the classes have, very often, by that time, no leisure to attend them. But, though every one may not have the chief responsibility in the training of children, there are few men or women who do not come into contact, at some time or other, with young children. And, though the contact be slight, the influence may be great; and, as many a parent knows too well, a few moments of mistaken kindness may undo the work of days. Every inducement should, therefore, be held out to encourage all men and women, especially the younger ones, to attend these classes. Even if the theory which they learn there be never put into practice, it is at least self-education.

Some will object that this methodical education takes time, and that the mothers, who are, after all, the chief educators in the world, have seldom time to bring up their children by it. The well known proverb, "A stitch in time saves nine," immediately rises to mind as a protest against this objection. A child who has been well trained in infancy will, in after years, give much less trouble than one who has not been so trained. Time will, in reality, have been saved. Finally, though the principal good effects of these lessons in methodical early education may not be perceptible till the next generation be grown up, they cannot fail to have some slightly good effect on this generation and on that which is rising now. Much would have been done if more persons could be awakened to a realization of the great responsibility which is attached to the duty of child training, and to a realization of the difficulty there is in obtaining a right training. This realization must foster the much-to-be-desired sense of the sacredness of fatherhood and motherhood. Though we may not attain to all that we would wish, "we are always the better, all of us, for having aimed high, for having striven to see and to know things as they really are, for having set ourselves to walk in the light of that knowledge, to help forward great designs, and to do good. 'Consider whereunto ye were born! Ye were not made to live like brutes, but to follow virtue and knowledge.'"

These are some of the thoughts which I would commend "to those whose concern for their dear little ones makes them so irregularly bold that they dare venture to consult their own reason in the education of their children rather than wholly to rely upon old custom."

A. D.

Some very remarkable maps were exhibited at the Hotel Cecil the other day. Perhaps it is hardly correct to call them maps, as they consisted of globes divided into a large number of detachable portions, each of which may be used as a map. The globes, which may be fitted up to show either the physical features or political divisions of the world, are stated to be the result of some thirteen years' labour on the part of Mr. G. R. Gill, F.R.G.S. They will probably be seen in a more complete form at the Royal Society's conversazione.

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CURRENT EVENTS.

Fixtures.

The next meeting of members of the College of Preceptors will take place on Wednesday, May 4, when Mr. J. S. Thornton, B.A., will read a paper on "School Recognition in England in the light of foreign practice."

* * *

Dr. T. B. Hyslop, M.D., M.R.C.P., will address the Child Study Society, London (90 Buckingham Palace Road, S.W.), on "Subconsciousness," April 7, 7.30 p.m.; and Dr. C. A. Mercier, M.D., F.R.C.P., F.R.C.S., will discuss before the same Society "Aims of Education," April 21, 7.30 p.m.

* * *

The Annual Meeting of the Secondary Schools Association (25 Victoria Street, Westminster) will be held in London on April 6, at 2.30 p.m. Prof. Sadler will open a discussion on "The Future of Endowed Schools in National Education."

* * *

The Third International Congress on School Hygiene will be held in Paris, August 2 to 7. Particulars from Dr. Dufestel, 10 Boulevard Magenta, Paris.

* * *

The eighth Vacation Term for Biblical Study will be held at Somerville College, Oxford, July 23 to August 15. The idea chosen for illustration is the presence of the Spirit in the Hebrew theocracy and the Christian Church.

* * *

The twenty-fifth anniversary of the opening of the Cambridge Training College for Women will be celebrated on May 14.

* * *

The Romanes Lecture at Oxford will be delivered by Mr. Roosevelt on May 18.

* * *

An Advanced Course in School Hygiene, consisting of visits to certain specially selected school premises and lecture demonstrations by eleven different lecturers, will be held at University College April 19–28. Limited to fifty students. Particulars from the Secretary of the College.

* * *

The Course for Teachers, held in former years at the Froebel Institute and at the Home School, Highgate, will be held this year at St. Edmund's School, Grayshott, August 1–20. Classes in the Psychology of the Child, Special Methods of Learning, School Organization, Nature Study, Geography, and Handwork. Lectures by Miss M. E. Findlay, Prof. Findlay, and Dr. J. W. Slaughter. Particulars from Dr. Slaughter, 4 Harcourt Buildings, Temple, E.C.

* * *

The Board of Education publish a list of thirty holiday courses on the Continent—at Greifswald, Jena, Marburg, Neuwied, Lübeck, Kaiserslautern, and Salzburg; Geneva, Lausanne, and Neuchâtel; Santander; Florence, Besançon, Dijon, Grenoble, Nancy, Boulogne-sur-Mer, St. Servan-

St. Malo, Paris, Versailles, St. Valéry-sur-Somme, Honfleur, Bayeux, Granville, Caen, Lisieux, Villerville, and Rouen. With date of each course, fees, return fares from London, cost of boarding, principal subjects of instruction, address of Local Secretary, &c., 2d., Wyman & Sons, Fetter Lane, E.C.

* * *

THE Teachers' Guild has arranged Modern Languages Holiday Courses, open to other persons as well as to members of the Guild, at Honfleur, Santander, Neuwied, and Lübeck, commencing in the first week of August and occupying not less than three weeks. For information, address The Teachers' Guild, 74 Gower Street, London, W.C.

* * *

THE University of Dijon, which has inaugurated Special Courses for Foreign Students with a comprehensive programme and prospects of degrees, announces also Holiday Courses, general and commercial, in autumn. Apply to M. le professeur Lambert, Rue Viollet-le-Duc, Dijon.

Honours.

H.R.H. THE PRINCE OF WALES has accepted the proposal of Liverpool University to confer upon him the honorary degree of LL.D.

* * *

ON the occasion of the installation of the Duke of Devonshire as Chancellor of the University of Leeds (June 11) the following honorary degrees will be conferred :—

LL.D. : The Duke of Devonshire, Mr. Asquith, the Marquis of Lansdowne, the Earl of Crewe, the Speaker of the House of Commons, Sir Hugh Bell, Bart., General Sir William Nicholson, Mr. A. G. Lupton (Pro-Chancellor), and Mr. Alfred Hopkinson, K.C.

D.Sc. : Lord Rayleigh, Sir Clements Markham, K.C.B., and Prof. Osler.

D.Litt. : Prof. F. J. Haverfield and Mr. Arthur Sidgwick.

* * *

SIR JAMES A. H. MURRAY, D.C.L., Litt.D., &c., editor of the "New Oxford Dictionary," has been elected a Foreign Correspondent of the Académie des Inscriptions et Belles Lettres.

* * *

THE title of Professor Emeritus has been conferred upon Dr. Edward Burnett Taylor, M.A., Hon. D.C.L., Fellow of Balliol, who recently resigned the Professorship of Anthropology in Oxford University.

* * *

PROF. LLOYD MORGAN, for twenty-two years Principal of University College, Bristol, and now Professor of Psychology and Ethics in the University of Bristol, has been presented with a quantity of plate and books in recognition of his services to higher education.

* * *

MR. A. TRICE MARTIN, M.A. Oxon., F.S.A., of Clifton College, late Head Master of Bath College, has been presented with a cheque for 200 guineas and an illuminated address in recognition of his services to education during the seven years of his residence in Bath.

* * *

A PORTRAIT of the late Prof. Churton Collins, by Mr. T. Wood Holgate, has been placed in the gallery of the Bodleian Library.

* * *

PORTRAITS of Profs. Cleland and Jack are to be presented to the University of Glasgow ; and the balance of the Jack fund is to be devoted to a mathematical prize.

* * *

MR. H. N. MODY, who has undertaken to provide the cost of the buildings of the new University of Hong-Kong, has been knighted. The foundation stone was laid on March 16.

Endowments and Benefactions.

MR. W. H. LEVER, Chairman of Lever Brothers, Port Sunlight, and Chairman of the Liverpool School of Tropical Medicine, has given sums amounting to £102,000 to Liverpool University.

* * *

GIRTON COLLEGE is appealing for £50,000 to pay off the mortgage on the new buildings (£31,000) and to increase the general endowment, which is now only £370.

* * *

AN appeal is made for £12,000 to purchase the building occupied by the Guilde Internationale, Paris. Subscriptions to Mr. H. S. A. Foy, Bush Lane House, Cannon Street, E.C.

* * *

MISS LUCY JENNER, daughter of the late Sir William Jenner, has left the ultimate residue of her estate to Newnham College to found Fellowships of the annual value of £300.

* * *

THE DUKE OF PORTLAND has promised £2,000 (spread over several years) for the extension and development of the Mining Department of the University College, Nottingham. A Chair of Mining is to be established.

* * *

THE London University Extension Board has received £100 from Mr. Martin White in aid of the development of the study of Civics ; and £100 from the Churton Collins Memorial Committee for a Churton Collins Prize or Scholarship.

* * *

SIR FRANCIS GALTON has made a further donation of £500 for the maintenance of the Francis Galton Laboratory for the study of National Eugenics during the year 1911–12.

* * *

MR. JOSEPH COWEN and Miss Cowen have given £10,000 to the Armstrong College Endowment Fund in appreciation of the attachment of the name of the late Mr. Joseph Cowen to the Chair of English Literature in the College. They prescribe two conditions : (1) that the stipend of the English Chair shall not be less than £500 a year, and (2) that there be established a Joseph Cowen Memorial Prize for an Essay in English Literature, History, or Politics.

* * *

MR. WILFRED HALL has presented to Armstrong College 10 milligrammes of radium bromide.

* * *

THE Ashington Coal Company has promised 30 guineas a year for three years to enable a very promising student attending the Saturday afternoon class for miners held at Armstrong College to follow at the College a course for the B.Sc. degree of the University in Mining.

* * *

MR. ALFRED MORTON bequeathed to the City Corporation £5,000 stock to found two scholarships at the Guildhall School of Music.

* * *

MR. ANDREW CARNEGIE has given 3,000,000 dols. (say £600,000) to establish a fund for the benefit of teachers engaged in the ten principal cities of the United States. One object is to enable selected teachers to study educational methods in other countries.

* * *

SIR CARRIMBHOY EBRAHIM has given to the Bombay Government a sum of £30,000 for the improvement of scientific training and the encouragement of research in connexion with Indian industrial progress, to be awarded in the shape of scholarships to science students of the Mussulman faith.

Scholarships and Prizes.

The next combined examination for 67 Entrance Scholarships and a large number of Exhibitions at Pembroke, Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges, Cambridge, will be held on December 6 and following days. Mathematics, Classics, and Natural Sciences will be subjects of examination at all these colleges. Scholarships and exhibitions will also be offered for History at Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges; for Modern Languages, at Gonville and Caius and King's.

* * *

At Oxford scholarships, exhibitions, &c., will be offered for competition — in Classics, at Pembroke, May 10; in Natural Science, at Brasenose, June 28; in History, at Christ Church, June 7; and in Divinity, at Brasenose, June 7.

* * *

The London Inter-Collegiate Scholarships Board will hold a combined examination for Entrance Scholarships and Exhibitions, tenable at University College, King's College, and the East London College, on May 10 and following days. Candidates must have passed the London Matriculation Examination. Entry forms from the Secretary of the Board, University College, Gower Street, W.C. The list of scholarships and exhibitions is fully set forth in the *London University Gazette* of March 9.

* * *

The National University of Ireland offers, in autumn, a studentship of £100 a year for two years in each of the following subjects: — (1) Ancient Classics; (2) Mathematical Science (Mathematics and Mathematical Physics); (3) Mathematical Physics and Experimental Physics; (4) Modern Literature; (5) Experimental Science; (6) Pathology and Bacteriology.

* * *

The London County Council offer Supplementary Junior Scholarships (maintenance grants) to a limited number of children that obtain free places in secondary schools. Tenable for three years (thirteen to sixteen; awards made in 1910 only from fourteen to seventeen). Not confined to elementary-school scholars, but open to all that satisfy the necessary conditions. Full information in the *L.C.C. Gazette* for March 7 (1d.; 1½d. by post; King, Great Smith Street, Westminster). Application forms from the Education Officer, L.C.C. Education Offices, Victoria Embankment, W.C.

* * *

Girton College offers an Organ Scholarship, £50 for three years, in June. Particulars from the Secretary, Miss Clover, Coleby, Grange Road, Cambridge.

* * *

Charterhouse offers ten (or more) Entrance Scholarships of £75 each, open to boys between twelve and fourteen, on July 15—one (or two) of the scholarships without reference to Greek. Examination, both at Charterhouse, London, and at Charterhouse, Godalming, June 21–2. Apply by June 14. Particulars from the Head Master, Charterhouse, Godalming.

* * *

Sherborne School offers Entrance Scholarships of £70 and under to boys under fifteen on July 1. Examination July 12. Apply to the Head Master.

Appointments and Vacancies.

Dr. E. W. Hobson, F.R.S., Fellow and Tutor of Christ's College, and University Lecturer in Mathematics, has been elected Sadlerian Professor of Pure Mathematics, in succession to Dr. Forsyth. He was Senior Wrangler in 1878, has been President of the Cambridge Philosophical Society and of the London Mathematical Society, and is a Royal Medallist of the Royal Society. His treatise on "The Theory of Functions of a Real Variable" is a standard work.

* * *

Dr. Karl Hermann Breul, M.A., Litt.D., University Reader in Germanic, has been appointed Schroder Professor of German in the University of Cambridge.

* * *

Prof. Raleigh, of Oxford University, has been appointed Clark Lecturer for 1910–11 in English Literature at Trinity College, Cambridge. He is a Cambridge graduate, and was Clark Lecturer in 1898.

* * *

Dr. Percy Gardner, Lincoln and Merton Professor of Archæology, Oxford, has been appointed Huxley Lecturer for the year.

* * *

The Rev. Ernest A. Edghill, M.A., formerly Scholar of King's, has been appointed Hulsean Lecturer at Cambridge for 1910–11.

* * *

Mr. A. D. Hall, M.A. Oxon., Director of the Rothamsted Experimental Station, has been appointed Robert Boyle Lecturer at Oxford for 1910–11.

* * *

Surgeon-General Sir Alfred Keogh, K.C.B., M.D., LL.D., &c., has been appointed Rector of the Imperial College of Science and Technology, in succession to Dr. Bovey.

* * *

Prof. E. A. Gardner, M.A., of University College, has been appointed to the new office of Public Orator in the University of London.

* * *

The Professorship of Italian Language and Literature in the University of London, University College, is vacant through the death of Mr. Arthur John Butler, M.A.

* * *

Mr. Percy Buck, Mus.D., Director of Music at Harrow School, has been appointed to the Chair of Music in the University of Dublin.

* * *

The Grant Professorship of Chemistry in the University of Liverpool is vacant through the death of Prof. J. Campbell Brown, D.Sc., LL.D.

* * *

Mr. Henry Allsopp, Balliol College, Oxford, has been appointed Vice-Principal of Ruskin College, in room of Mr. C. S. Buxton, who has become private secretary to his father, the President of the Board of Trade.

* * *

The Rev. S. L. Brown, M.A. Oxon., Vice-Principal of Bishop Jacob's Hostel, Newcastle, has been appointed Warden of St. Asaph and Bangor Clerical Education Society.

* * *

Mr. Kenneth E. Kirk, B.A. Oxon, has been appointed Warden of University College Hall, Ealing.

* * *

Mr. M. Kaizer, M.Sc. Liv., has been appointed Superintendent of the Jews' Hospital and Orphanage, West Norwood.

* * *

Mr. T. W. Holme, B.A. Liv., formerly University Fellow and Tutor in English Literature, Liverpool University, has

been appointed Professor of English Literature in the Presidency College, Calcutta.

* * *

Mr. Arthur Jones, M.A., Manchester, has been appointed Professor of History and English in Jubbulpore College.

* * *

Mr. Robert B. Denison, Ph.D. Breslau, D.Sc. Vict., Assistant Professor of Chemistry, Heriot-Watt College, Edinburgh, has been appointed Professor of Chemistry in Natal University, Pietermaritzburg.

* * *

Mr. Francis M. Denton, Lecturer in Electrical Engineering at the new Carnegie Technical Schools, Pittsburg, has been appointed Associate-Head of the Electrical Engineering and Applied Physics Department of the Northampton Polytechnic Institute, Clerkenwell, in succession to Dr. C. V. Drysdale, resigned.

* * *

Mr. A. L. Willoughby, M.A. Lond., Ph.D. Vienna, has been elected Taylorian Lecturer in German at Oxford University.

* * *

Applications (eight copies) for the Beit Lectureship in Colonial History at Oxford (£300) are to be lodged with the Registrar of the University by June 15.

* * *

Mr. L. Doncaster, Fellow of King's College, Cambridge, and Lecturer in Zoology in Birmingham University, has been appointed Superintendent of the Museum of Zoology and Comparative Anatomy, Cambridge University.

* * *

Mr. J. W. Peck, M.A., F.R.S.E., Principal Assistant to the Education Officer of the London County Council, has been appointed Clerk to the Edinburgh School Board.

* * *

A Reader in Russian is required in Oxford University, to enter on his duties in October. £300 a year. Apply (eight copies) to the Registrar of the University by June 1.

* * *

A History Tutor is required at St. Hilda's Hall, Oxford. Apply (three copies of testimonials and two references) to Mrs. Wells, 1 Norham Gardens, Oxford, by April 18.

* * *

The Principalship of St. George's High School for Girls and Training College for Women Teachers in Secondary Schools, Edinburgh, will be vacant at Midsummer through the resignation of Miss Walker. Apply to Miss S. E. S. Mair, 3 Melville Street, Edinburgh, by May 2.

* * *

Mr. William W. Vaughan, M.A. Oxon., Head Master of Giggleswick School, has been appointed Head Master of Wellington College.

* * *

Miss Alice Ravenhill has resigned her appointments at the Women's Department of King's College, as Lecturer under the London University Extension Board, and as Lecturer to Teachers under the London Education Committee. She is going to reside with a brother in Vancouver Island, B.C.

* * *

Mr. William C. Edkins, M.A., LL.B. Dubl., Second Master, Wigan Grammar School, has been appointed Head Master of the Grammar School, Hindley.

* * *

Mr. Fred Hodson, B.Sc. Lond., Ph.D., assistant master, Bedales School, Petersfield, has been appointed Head Master of the Grammar School, Melton Mowbray.

* * *

The Rev. Charles B. Nicholl, B.A., assistant master, has been appointed Head Master, of King Edward VI's School, Grantham.

* * *

Mr. Reginald Carter, M.A. Oxon., Rector of Edinburgh Academy, has been appointed Head Master of Bedford Grammar School.

* * *

Mr. F. D. Evans, B.A., Assistant Classical Master, Merchiston Castle, Edinburgh, has been appointed Head Master of Macclesfield Grammar School, in succession to the Rev. Darwin Wilmot, M.A. Oxon., who has resigned after thirty-four years' service.

* * *

Mr. Alfred T. Morris, B.A. Oxon., Modern Language Master, Portora Royal School, Enniskillen, has been appointed Head Master of the Grammar School, Carrickmacross.

* * *

The Rev. R. S. Franks, formerly Tutor, Mansfield College, Oxford, has been appointed Principal of Western College, Bristol.

* * *

Mr. A. H. Russell, B.A. Wales, Organizing Secretary for Technical and Higher Education in the Wotton-under-Edge area under the Gloucestershire County Council, has been appointed Head Master of the new Higher Elementary School and Pupil-Teacher Centre at Cinderford.

* * *

Mr. John Lupton, M.A. Cantab., assistant master, St. Paul's School, has been appointed Head Master of King Henry VIII's School, Coventry.

* * *

Mr. H. E. Haig-Brown, M.A. Oxon., Inspector of Education under the East Sussex Education Committee, has been appointed County Inspector of Education for the Surrey County Education Committee.

* * *

Mr. Frank C. Nicholson, M.A., Acting Librarian of the Royal College of Physicians, Edinburgh, has been appointed Librarian of the University of Edinburgh.

Literary Items.

Messrs. Blackie will issue presently, under the general title of "Beautiful England," the first six volumes of a new series of monographs descriptive of the most famous places of historic interest in England—"Oxford," "The English Lakes," "Canterbury," "Shakespeareland," "The Thames," "Windsor Castle." Each volume will be illustrated by twelve coloured plates by Mr. E. W. Haslehurst.

* * *

"The Quest of the Historical Jesus," by Dr. A. Schweitzer, translated by the Rev. W. Montgomery and prefaced by Prof. Burkitt, is about to be published by Messrs. A. & C. Black. It contains a history of the attempts made during the last two centuries to write the life of Jesus.

* * *

The *World's Work* offers twenty-three prizes for the best essays on "How to use the *World's Work* in the School."

* * *

The "*Record* of the Old Students Association of the Royal College of Science, London," has just made its first appearance. It will be issued at irregular intervals to give

"information in regard to the work of the Association and other matter of interest to old students." Communications to be addressed to the Secretary of the Old Students Association.

General.

THE Senate of London University have decided to invite representatives of the Universities of the Empire to a Congress to be held in London in 1912.

* * *

A NEW training college for teachers is to be erected at Dundee, together with a hostel for students. The estimated cost is £40,000.

* * *

ST. PATRICK'S COLLEGE, Maynooth, has been recognized as a College of the Royal University of Ireland.

* * *

THE National Industrial Education League, proposed by Mr. Robert Applegarth, "one of the Old Guard," has received the approval of seventy-four Trades Councils and of the representatives of industrial workers in some two hundred towns, representing several hundreds of different trades and more than three millions of workers. "My sole desire," says Mr. Applegarth, "is to see the rising generation of workers placed in a position to acquire a thorough industrial training at the hands of practical men possessing a thorough knowledge of trade and industry."

DEMONSTRATION SCHOOLS: THEIR PURPOSE, METHOD, RESULTS.

AT the Evening Meeting of the members of the College of Preceptors on Wednesday, March 16, Prof. ADAMSON, B.A. Lond., in the chair, Prof. J. J. FINDLAY, M.A., gave an address on the above subject. He has prepared for publication the following paper, which covers substantially the topics discussed at this meeting:—

Although I do not intend to occupy much space in this address with personal references, I wish to say with what pleasure I find myself in this hall to discuss, for the first time, the subject of Demonstration Schools with an audience of English teachers; for it was during the time that I was engaged, some twelve years ago, in the service of this institution that the idea of the Demonstration School first shaped itself in a practical form in my own mind. In 1897 I presented a report to the Council of this College describing such a type of school and using the term "Demonstration" for it; in the next year, our Joint Committee for the Training of Teachers adopted the same idea and the same term.

Since then we have had the good fortune in Manchester to establish the Fielden Demonstration School, and, what is far more important, the authorities at Whitehall have adopted both the title "Demonstration School" and the specific principles which it embodies. The regulations for training colleges have for many years made use of two other titles, namely, Model School and Practice or Practising School. I shall hope to show that this new type of school indicates a new conception more or less consciously sought by all educational reformers, but not often accepted by our public authorities. It is my duty to-night to expound these principles, and I will begin with certain broad axioms which none of us will dispute.

1. "Training," in ours as in all professions, is a *technical* pursuit—*i.e.*, it exhibits the sciences which underlie our calling in relation to the practice of it. This distinguishes it from empirical employments, such as those of the artisan; here practice is abundant, but is supported by meagre resources in theory. Thus, stray hints about the giving of lessons, workshop rules and criticisms, are not a substitute for an intelligent grasp of abstract principles exhibited in practice. In this distinction we are merely following many other callings which are gradually emerging from the empirical to the rational stage. I say that this, rather than any social or caste distinction, is the true line of cleavage between between a profession and a trade, or between professional and amateur employment; a calling to be regarded as "professional" must be based upon a large groundwork of abstract doctrine and of liberal thinking.

2. Both theory and practice are in process of *development*. Theory is not some fixed set of doctrines which the beginner is set to learn, but it is a movement of ideas. In every profession we witness this process—an incessant striving for a better explanation of phenomena, leading to wiser guidance for daily practice. And the growth of these two—efficiency in daily work with illumination of mind—proceed together. Practical experience reshapes theory; theory, in turn, corrects practice. If a professional man ceases to think he may perform the mechanical parts of his task better, but his development is arrested.

3. Every profession finds its own methods for watching and fostering this development; but, however various these methods may be, they necessarily centre around students—*i.e.*, those who will carry on the profession in days to come. Hence one special function of those who take charge of students (whether it be for the clergy or for the bar, for accountancy or for education, my argument is the same) is to take their stand at points where progress is being made. Thus they can assist both their own minds and the minds of young students, to treat their profession not as a static fixed routine, but as a dynamic process, in which better practice can always be anticipated, aiding and aided by a truer conception of theoretic principles.

4. Now let us turn to our own calling. The centre of interest in the teacher's craft is the child at school, or, to use the proper technical term, the scholar. Whatever we acquire or expound as regards theory relates to him. Our business is to become familiar with his nature (as distinguished from the adult stages of man), his ideals, his temperament, his experiences, his environment. Fundamentally, in fact, *the subject* of education is *the scholar;* those pursuits which are often called school subjects are not primarily the subject of (*i.e.*, the business of) the school. True, the teacher as a student of education must acquaint himself with these pursuits, because without such knowledge he cannot interpret the enfolding life of the scholar. I wish to dwell upon this point with care, not only because it proves a stumbling-block to many, but because I can refer you to a point of view presented by John Dewey which I regard as a notable contribution to the problem of training as well as to the entire theory of education. In his essay on "The Child and the Curriculum," Dewey* shows us how the interests and claims of the child have always been set against the claims of subject-matter. The need for the teacher being a scholar is contrasted with the need for him to have a mastery of child nature.

> Every study or object thus has two aspects—one for the scientist as a scientist, the other for the teacher as a teacher. These two aspects are in no sense opposed or conflicting. But neither are they immediately identical. For the scientist the subject-matter represents simply a given body of truth to be employed in locating new problems, instituting new researches, and carrying them through to a verified outcome. To him the subject-matter of the science is self-contained. He refers various portions of it to each other; he connects new facts with it. He is not, as a scientist, called upon to travel outside its particular bounds; if he does, it is only to get more facts of the same general sort. The problem of the teacher is a different one. As a teacher he is not concerned with adding new facts to the science he teaches, in propounding new hypotheses, or in verifying them. He is concerned with the subject-matter of the science as representing a given stage and phase of the development of experience. His problem is that of inducing a vital and personal experiencing. Hence, what concerns him, as teacher, are the ways in which that subject may become a part of experience; what there is in the child's present that it is usable with reference to it; how such elements are to be used; how his own knowledge of the subject-matter may assist in interpreting the child's needs and doings, and determine the medium in which the child should be placed in order that his growth may be properly directed. He is concerned not with the subject-matter as such, but with the subject-matter as a related factor in a total and growing experience. Thus to see it is to psychologize it.

Thus to the teacher all these arts and sciences are pursued, just as anatomy or bacteriology by the physician, to help him to understand and then to guide him in the pursuit of his profession.

5. While the single scholar needs to be studied apart, the practice of our calling is not pursued, as in medicine, with one "subject" at a time, but we teach our scholars in groups—

* In the volume entitled "The School and the Child" (Blackie, 1906).

i.e., in classes and in schools—and, both as students and trainers, must practise our art under these conditions. The scholar not only develops as a personality from infancy to maturity, but as a comrade with his fellows from grade to grade in a society called a school, where many teachers contribute to promote the desired end. There is an element here of co-operation, of collaboration, introduced into our calling to which a parallel can scarcely be found in other professions. The student needs to work continuously for weeks at a time with a class of scholars before he can comprehend this situation: he needs to be intimately associated with a good school society before he can realize the conditions under which educational results are brought about. An isolated lesson given to strangers, although it be dignified by the name of "criticism lesson," is an artificial exercise which may readily tend to create a perilous breach between theory and practice. And he who investigates problems of teaching cannot work in isolation: he has to learn to give and take, to share his methods with colleagues, and to accept the limitations which such association involves. While every man has to think out principles in his own mind, he can only put these to proof by the co-operation of his associates, who share with him the extended processes which are involved in bringing a course of teaching to fruition.

6. Hence the most accurate description of a student of education is: a person on the search to co-ordinate school experience with abstract principles, to interpret school phenomena in terms of a larger synthesis. In fact, the student does formally and elaborately what in later life the practitioner has to do rapidly and subconsciously. Every teacher has not only his scholarship, but an ethics, a psychology, a view of mind of his own; and the student of teaching is simply a person who separates the abstract from the concrete; who unites the immediate with the remote; who selects, examines, corrects, revises, till there is harmony between practice and theory, between the deeds of to-day and the reflections of yesterday. Not that this harmony can ever be fully achieved; but it is the goal towards which the mind, by its own inevitable structure, is compelled to work. And the best aid that a student can receive from his seniors is to make him a seeker after this goal, to bring theory and practice close together, to make him dissatisfied with what is superficial and trivial, either in windy theory or in traditional practice.

So much for axioms on which I hope we may all be agreed. And now the central problem of a training college or a department of education emerges — we must discover what is the appropriate machinery which shall enable the beginner to make, in his own person, this union between practice and theory, to form professional habits which will compel him to use his ethics, his psychology, his scholarship, as means to throw light upon the daily life of the schoolroom. Each profession discovers its own machinery: for the physician and surgeon some hospital experience is now regarded as indispensable; for the clergyman a theological college; for the solicitor an apprenticeship, combined, if possible, with attendance at lectures. As regards the calling of a teacher, I do not wish to strengthen my case by depreciation of workers in earlier days, but are we not agreed that the divorce of theory from practice has been a reproach against all who advocated the study of education? The student heard his pedagogic lecture and read his text-books; but he was sent to practise under conditions where these lectures and text-books were at a discount, and often deserved to be at a discount, because they were composed by those whose interests and pursuits lay remote from the practice of the profession.

Ours is not the only profession where such a cleavage is witnessed. It is painfully felt in engineering, to mention only one profession where success in scientific research is by no means to be identified with practical efficiency in the craft. I am told it is equally felt as a drawback in architecture.

In the early days when the first efforts were made to train elementary teachers the Model School was devised; Lancaster, David Stow, and others took charge of large bodies of children and set over them monitors who worked to a rigid pattern. There was not much theory to be studied, and these monitor-teachers were also too young to profit by any kind of theory. They learned by imitation and suggestion, and such mode of learning is by no means to be despised. In all professions we learn much of our dexterity by following the example of our elders, and in the teacher's calling, where authority and uniformity are manifestly required, there is much to be said for any system, either of apprenticeship or of a model school, which definitely moulds the beginner so that he shall readily copy the approved types.

But, if you accept the first of the axioms I have presented above, you will refuse to regard any such system as professional *training*; for it makes no appeal to intellectual freedom; there may be, indeed there must be, some theory in the mind of the master who shapes the model, but the student is not learning to *study* his profession at all. And it is easy to see how all the opponents of progress in our profession combine in desiring to prevent young teachers from becoming, in any real sense, students; they are satisfied with the past; they are afraid of crude reforms which shall disturb the wholesome traditions of an older day; frequently they themselves, although painfully industrious in working the machine, are afflicted with laziness of mind which resents the challenge of new truth. Even where they are disciples of some earlier school of reform, such as Froebel or Arnold or Herbart, they find their satisfaction in building the sepulchres of those whom their fathers stoned; and, while from men of this type a new generation of teachers can learn much that is useful, we cannot learn the art of studying a profession; new wine here, as in other situations, must be contained in new bottles.

Nevertheless, some form of apprenticeship has always found great favour among teachers, since, as we have seen, theory can only be discerned when associated with practice—*i.e.*, with real practice in a working school. In secondary education, both in England and Germany we have many examples of such a system; a school of repute admits a few probationers to its privileges and the student gains more or less guidance in his search for principles; if those who direct him are men of wide intelligence, they may do much to help a beginner towards that harmony which I have described as the goal of all his efforts. In any profession where the amount of reliable theory is small, or where there is a danger of charlatanism, an apprenticeship is the safest plan for introducing the beginner to his life's work. But when a craft begins to be organized—*i.e.*, becomes the subject of deeper reflection; when the standard of sound and creditable theory advances; when related bodies of science offer their contributions to enlighten the craftsmen — when such a stage is reached, then apprenticeship breaks down. Our teachers at the present day in ordinary schools, secondary or primary, have neither the time nor the taste to devote themselves to the intellectual needs of probationers. Such a teacher will often be doing work of the highest quality, but he cannot always interpret his method or his results; or, if he attempts to do so, he will be spending effort which lies beyond his proper duty. This is not to say that there is no advancement to be witnessed in our schools; on the contrary, I believe that there is more activity of this kind in our schools at the present time than in our training colleges, and I shall presently indicate how necessary it is for all students to gain plenty of experience in the regular schools under ordinary conditions. But I maintain that we have now reached a stage where something more is required to satisfy the intellectual needs of young teachers than can be adequately met by establishing a training course as a mere annexe to a large public school.

Now it is this need which accounts for the origin of the Demonstration School. A little reflection will show that, although the title is novel, the idea is of older date, for every genuine educational "reformer" has been compelled to express himself through some such institution; Pestalozzi, Arnold, Herbart, Froebel, Dewey, all of them proved their faith by their works, all were engaged—first in their own minds, then with the co-operation of colleagues and disciples—in this eternal effort towards reconcilement between the ideal and the practical. And many of the Practice Schools attached to our older training colleges were engaged, more or less avowedly, on the same errand; for no one can be honestly concerned to help students without making some effort to bridge this gulf. What is new in this plea for a demonstration school is the attempt to organize an institution expressly devised for training college purposes. As educational theory has been elaborated—as psychology, ethics, physiology, sociology, have claimed more and more to determine the foundations on which this theory rests—we have discovered more and more acutely the danger of feeding students with theory apart from experience: both they and their instructors need to be at work in a school where the principal business of the place is to "demonstrate," compelling the trainer to show how his theory relates itself to the daily business of school-

keeping, and compelling the student to interpret that daily work in the light of abstract doctrine.

Such a school obviously requires quite a distinctive organization; thus, (1) while there should be enough scholars in attendance to make the work continuous, there is no need to increase the numbers for the sake of numbers; but (2) the scholars should be in regular attendance and should be such as are likely to stay at the same school for a number of years. Children of the very poor are too migratory; children of the rich make too many demands; (3) the school requires to be fully staffed, so as to prevent students being used in the place of properly qualified teachers; (4) the equipment and management should be such as to allow of the coming and going of a large number of students and visitors without undue disturbance to the scholars; (5) as the Board of Education indicates,* the method of control must be such as to enable the work of the school to reflect the principles of teaching and discipline expounded to the students. In fact, the staff of such a school are demonstrators (colleagues of the training college staff, if not identified with it) co-operating, on the principle referred to above, not only to teach the scholars, but to expound the theory under which the school pursues its task. There are no doubt many modes in which this control can be realized, but it is obvious that effective unity is required in all the proceedings of such a body. The duties to be discharged are more complex than those encountered in many schools, and the distribution of these among a staff is a matter which will admit of various treatment under varying conditions. Clearly there must be one or more teachers whose principal concern is with the daily affairs of parents and scholars; just as in a hospital there are house surgeons or superintendents who have a closer concern with management than that of a consulting physician. But the analogy cannot be pressed too far, since, as we have seen, a school to achieve its ends needs an intimate co-operation between all its members. One collateral effect of the establishment of such a school may be noted: it tends to purge our training colleges of instructors who are out of sympathy with children or who are unwilling to work with children, and thus tends to raise the standard of professional efficiency among those who undertake the responsible office of training students.

Apart from these special features, in what ways does a Demonstration School differ from other schools? The best answer is to say that it has to undertake with more formality and completeness what every good school seeks to do so far as leisure and circumstances permit. Thus (*a*) a teacher usually keeps some record of his lessons; in a demonstration school, every lesson must be carefully noted on an organized plan, so as to be available for colleagues and students; the curriculum is the work of many hands, shaping and reshaping it from term to term; (*b*) in every good school, staff meetings are an aid to co-operation and unity; in England they are not so effectively employed as in Germany, but with us their value is being increasingly recognized. In a demonstration school, such meetings are indispensable; sometimes they take the form of discussion in which students play a part; sometimes of gatherings where training college lecturers and demonstrators exchange views; sometimes of smaller groups of colleagues dealing with one branch of school work. And this perpetual interchange shapes itself in new sketches of curricula or improvements in method, as well as in more immediate measures for the benefit of the scholars; (*c*) every good school encourages the staff to read professional literature and seek some equipment of a professional library, apparatus, &c., but here such study is a *sine qua non*; new books on method, new apparatus should be sent to it for examination; (*d*) every good school keeps some record of each scholar's progress; some schools now keep records of height, weight, &c. But here, such records ought to be the foundation of the student's acquaintance with school hygiene and genetic psychology; the preparation of these records means many hours of work for those who undertake to teach child-study on such a laboratory method.

Now it will be obvious that, if these obligations are to be fulfilled with fair adequacy, more will be demanded in the way of staff, financial resources, material equipment than has been contemplated so far by many who have countenanced the establishment of demonstration schools. The Board of Education has done much for us by recognizing the need for such an institution, but they have provided bricks without straw! We must wait with patience, and in time that much-abused body will, no doubt, be willing to pay the price for that which it demands.

A few words, in conclusion, as to the *results* which such schools are accomplishing. As I have observed, although I am discussing more especially the newer schools designed by the term "demonstration," you will expect that the results will be similar in character to those observed in other schools (both in England and abroad, from the days of Pestalozzi) which have professed this special aim of illustrating principles through practice. Besides our school in Manchester, I visited only one in England that has assumed this title—viz., the Council school situated within half a mile of this College, which has been adopted by Prof. Adams and his colleagues as a demonstration school. I had the privilege yesterday of visiting this school and hearing of its work, and I believe that much I have advanced above will be approved by Dr. Nunn, Mr. Beresford, and their fellow-workers in Cromer Street. We differ, I think, only in one point of importance. To me it appears that the more a demonstration school assumes its distinctive character—*i.e.*, the more thoroughly it exhibits the advance of theory beyond the current practice—the less fitted it will be to replace the experience which every student should gain from working in ordinary public schools, elementary and secondary. But this is a matter largely of organization which further experience can best determine. With the freedom now afforded by the Board of Education I see no reason why a demonstration school should not work within the limits of the Code.

Let us look at the results as affecting the three parties to the transaction. First, the staff, since it is to aid their work that such schools are provided. Here the opinion is unanimous, both from lecturers and staff teachers, that work in such a school, while adding much to our labour and responsibilities, promotes immensely our efficiency. For it provides a safeguard against reckless adventure in theory, and keeps the thinker in close contact with the product of his speculation. Instead of being merely a critic of criticism lessons given by students, the staff who work in a demonstration school are themselves open to criticism. The most famous school of the kind now at work is the little *Uebungsschule*, directed by Prof Rein, at Jena, and it was long ago observed by his students that that school, humble as it was in its equipment, was the salvation of the Herbartian movement in Germany; more than once, in my student days at Jena, I have witnessed some grandiose theory brought to earth in a few weeks by being tested in that laboratory!

Secondly, the students. There are three successive pieces of work that a student needs to undertake before he can be regarded as trained in any complete sense. (*a*) He needs to study the mental and physical life of children. This undertaking is great, and in his student years he can only make a beginning, but in a Demonstration School equipped for the purpose he can set to work inductively to observe the phenomena of child life, which, with further reflection, shapes itself in his mind as genetic psychology. (*b*) He can thereupon study principles of teaching: selection of pursuits for children, method of preparing lessons, and the like. Here is the central point where theory and practice join: the lecturer becomes demonstrator. Is it a question of learning to read and write? On one day the student is set to examine the mental processes underlying these arts, and in the same week he watches classes of scholars engaged in the acquisition of these arts, and by discussion with teachers and demonstrators can satisfy himself that the psychology (such as we find it, *e.g.*, in recent books by Huey and O'Shea) is not only sound as psychology, but fruitful when applied to a practical problem which every school must solve. So with every department of school activity. (*c*) Having made a beginning with theory, a capable student tries his own hand; demonstration is followed by responsible exercise. He takes a class for continuous teaching, and, under the guidance of demonstrators, gains a deeper knowledge of principles by seeking to achieve results. This is certainly practice, but it is practice of a special kind, not pursued merely to gain experience, but to gain a deeper understanding of those relations between principles and performance which it is the sole design of the school to exhibit. Doubtless the achievement is not always attained; poor lessons may frequently be witnessed, with results that need rebuke, even in the best of demonstration schools. But there is no concealment; bad work is open to many eyes for inspection, and a remedy will soon be found.

* "Regulations for Training Colleges, 1909."

Finally, the children. It is here the strongest attack is made against demonstration schools; indeed, a similar outcry has always been made against any proposal to use schools for practice or demonstration. Although experience shows that parents are glad to secure for their children the advantages of such an institution, the critic always avers that the scholar *must* suffer. Such critics seldom offer any alternative plan by which the prentice hand can at one bound become a skilled practitioner; all they seem to ask is that the crude effort of the beginner shall be concealed from the public gaze. On the contrary, it is better in the public interest that in teaching, as in medicine, the methods by which students learn their art shall be fully exposed, so that the public will at the same time appreciate the safeguards by which this inexperience is surrounded. In such schools the children are exposed to one obvious disadvantage, but this is compensated by an advantage even more appreciated. The disadvantage comes from the great number of persons who teach a scholar; some of these, indeed, are teachers of exceptional power, others may be the opposite. But the compensating advantage (exactly as in the analogous case of the hospital patient) arises from the exceptional care taken in all the work that leads up to this teaching—the preparation of lessons, &c., which has been described above. Also the classes are usually small, and the scholars receive individual attention.

There are, of course, hostile critics who would be glad to describe such a school as a kind of vivisection institute where children are subject to perpetual experiment; but such critics would soon alter their mind if they ceased to theorize on matters which they are too indolent to investigate. If the reader has followed the argument of this paper, he will perceive that I have no great desire to see experiment replace demonstration. In a sense all good schools are experimental, but it is doubtful whether many improvements in teaching can be adequately tested on the strict lines of controlled experiments; and it is certain that no school ought to be established for the express purpose of making such experiments. True, from the standpoint of demonstration, a school can serve a department of education as a laboratory serves a department of physics; but children are not so pliable as glass or iron, and educational experiments must follow a method adopted to the status of the child at school. Nevertheless, while experiment, in the laboratory sense, has not so far been systematized, it would not be right to ignore the service that such schools ought to render in the promotion of research. On the contrary, there is evidence enough that they are already contributing materially to the advancement of knowledge, and will contribute much more when they are adequately equipped to discharge their function. For we revert to our axioms: the demonstration school stands precisely at this point of departure (the "growing point,"* as Dr. Nunn calls it) between theory and practice. Its staff are not doing their duty unless they are on the watch for new ideas, for new interpretations of child life, for new material that can help that life to a better growth. And, if their ability is equal to their zeal, the situation must result, sooner or later, in a more enlightened exposition of the teacher's art.

I have now treated, I fear in too summary a fashion, the ground covered by the title of this paper. Much that I have advanced is, of course, the outcome of my recent experience in Manchester; but I have sought to put the arguments on a sounder basis than any local experience. It would, indeed, have been unwise to offer the Manchester example in any way as a pattern; for, although the Fielden school is designed to serve the needs of a large department of education, training some three hundred teachers for the public service, it still remains on a precarious footing, owing its existence to the devoted generosity of its founder, Mrs. Fielden, and supported only by the goodwill of its friends and by the University which sanctions it operations. Under such conditions, hampered both in funds and in equipment, it can scarcely expect to discharge all the functions that I have indicated with any great success—rather, it may be regarded as a pioneer: others may benefit from the errors to which early explorers are liable. But, even with us, limited as our resources are, evidence is forthcoming that our demonstrators are making some contributions of worth.† Nor should I desire to be regarded as complaining of these limitations. The best achievements in the reform of teaching have so far been wrought under circumstances of poverty and perpetual discouragement; wealth and exterior magnificence have oftentimes smothered zeal for research. At Stanz, at Keilhau, at Jena, amid the humblest surroundings, eager students living with children have learned much that the most highly organized institute would have failed to impart. But what I have sought to show is that the time is ripe for the profession at large (teachers and administrators together) to adopt the principles of training and of professional study which pioneers such as Pestalozzi, Froebel, Rein have taught us. Such adoption, when applied on a large scale, means the establishment and maintenance of specific machinery—a new type of school as an adjunct to all institutions where students seek professional equipment. We trust that this new institution will be welcomed, both by our fellow-craftsmen, anxious to see a new generation better equipped than we of an older day have been, and by the State, which so rigorously controls the fortunes of our profession.

Mr. Dumville did not agree that the idea of a demonstration school was new. The name might be new; but the school with its principal uses had been in existence for a long period, if not in this country at any rate abroad. He instanced the Ecole Annexe which was attached to most of the French training colleges. Without suggesting that this was a model school, he thought it pursued the chief objects mentioned by the lecturer. An important difference in the two countries was that in England the students had had some previous experience in teaching, whereas in the French colleges they had no previous experience and were drafted into the demonstration school to acquire what they could in connexion with lectures in the college. At the particular school in Lyons where he spent most of his time, students had access to very elaborate manuscript books setting out the methods to be pursued in teaching the different subjects. The lecturer had not altogether succeeded in showing that these schools were not likely to suffer with respect to the education given in them. From the point of view of the training college, the training of the student was the most important consideration, and the pupils of the school were merely the subject of experiment. If, as the lecturer had stated, there was formerly considerable dissatisfaction on the part of parents and others under the pupil-teacher system, this objection would be stronger in the case of the demonstration school. It was true that the schools were popular, both here and in France, because most parents were not concerned with the quality of the instruction, but with the respectability of the association with the training college. He agreed with Prof. Findlay that lecturers in training colleges should themselves be teachers, and he hoped that this view would commend itself to the authorities in London. He would have liked to hear something of the relation of the training college with the staff of the demonstration school, especially with the head master, who, he thought, should be on the staff of the college and take some of the lectures. These schools could be used not only by the students of the training college, but by the schools around, which might send representatives to see the methods in use from time to time. And that would diminish another difficulty with reference to young students. They were taught method, and, in the absence of special demonstration schools, they had demonstration lessons in the college. But after his training had been completed, the student would find other methods in use, and, however desirable he might consider the methods he had been taught, he was bound to obey the head master of the school in which he was employed and never under any circumstances to create conflict on the question of method. Prof. Findlay seemed to consider that the training of the teacher should commence in the demonstration school. We certainly needed demonstration schools, because the preliminary training in the elementary school had now been cut short, and consequently, those who had charge of training had to deal with young students who had had little experience. In the institution with which he (Mr. Dumville) was connected, most of the students have had one year in a school before entering college, and he thought there was an important reason for retaining that part of a teacher's training. The first qualification for any teacher, before all else, was personality—a certain fitness for the art. In training colleges they were dealing with method, but the man was more than the method, and it was a mistake to take young students merely because they were brilliant and of good character, and put them through a course of training for some years without first finding out whether they were specially fitted for the work. The English system was approximating more and more to the French and German systems, and it might go too far in that direction. In order that the teacher's life might be a happy and profitable one, it was necessary to ascertain *at the outset* that he was fitted for the control of large numbers of boys or girls.

Prof. Findlay having replied to a number of questions addressed to him by the Chairman and other members of the audience, a vote of thanks to the lecturer concluded the proceedings.

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* *Training College Record*, February, 1910, page 38.

† In addition to "The Demonstration Schools Record," published two years ago (Manchester University Press), see the *Journal of Education*, October, 1909, and April, 1910, articles by Miss Harvey and Miss Ormrod, and *Educational Handwork*, January–March, 1910, articles by Miss Grace Owen; also, in the forthcoming issue of *Child Study*, a paper by the same writer.

CONFÉRENCES FRANÇAISES.

Société Nationale des Professeurs de Français.

SCÈNES ET RÉCITS.

Par M. Stéphane Barlet.

Nous avons eu Samedi, 26 février, non point une conférence dans le sens propre du mot, mais une séance de diction, une de ces séances qu'on ne nous prodigue pas, malheureusement, et qu'un public tel que celui qui fréquente généralement la belle salle du "College of Preceptors" goûte beaucoup. Car il est friand de belle littérature, de poésies fines et légères, de morceaux soigneusement choisis qui émeuvent ou font gentiment sourire, et surtout dits comme on aime à les entendre dire, avec une diction nette, précise, savamment cadencée, à laquelle vient en aide une voix sympathique et chaude qui va sans efforts aux quatre coins de la salle, la remplissant de ses éclats ou de ses murmures sans qu'on perde une syllabe. De telles séances sont à la fois une leçon de littérature et une leçon de prononciation, de bien dire en un mot, et c'est pourquoi nous en désirerions plus souvent, car tout le monde y trouve son compte, et elles sont en même temps un repos et une joie. Certes nous avons conscience de l'effort nécessaire pour tenir enchaînée, pendant plus d'une heure, l'attention de quelque deux cent cinquante auditeurs, pour éviter la monotonie du débit, pour plaire à tous les goûts. Mais les résultats acquis en valent, croyons-nous, la peine, et nous espérons que M. Barlet, qui se fait entendre à de si rares intervalles—car il y a bien quelque huit ans depuis la dernière séance qu'il nous a donnée aux "Preceptors"—voudra bien, un peu plus souvent, nous charmer et nous instruire.

Notons que cette séance a été, en outre, une révélation, car Mlle Capdevielle, qui a si pathétiquement rempli le rôle de "Thérèse," s'est montrée, quoique visiblement souffrante, une diseuse de grande envergure, et nous espérons l'entendre et l'applaudir bientôt à nouveau.

> Heureux qui, dans ses vers, sait, d'une voix légère,
> Passer du grave au doux, du plaisant au sévère.

Ce sont là justement les émotions par lesquelles nous a fait passer M. Barlet d'un bout à l'autre de la séance, et s'il a été "heureux," comme le dit Boileau, les auditeurs ne l'ont pas été moins.

Prenons les morceaux dans l'ordre du programme.

"Le Héron." On connaît le récit de La Fontaine, plein d'ironie et d'humour. Mais "La Fille," qui lui fait suite, est moins connu, et met encore mieux en vedette, par sa fine satire, la morale de la fable: "Ne soyons pas si difficiles!"

La scène du "Lion Amoureux," où Humbert, ardent républicain, sacrifie son amour pour flageller, dans une sortie vibrante de patriotisme, les muscadins qui osent dénigrer les géants de la Révolution, a été dite avec élan et conviction.

"La Leçon de Grammaire"! Un professeur est amoureux de sa jeune élève. Mon Dieu! ça se voit. Et la jeune fille semble en prendre bravement son parti, trouvant qu'il lui reste beaucoup à apprendre—en français—comme elle le dit à son oncle, n'en étant encore qu'au verbe "aimer"!

"La Bénédiction," de Coppée, est trop connue pour en parler longuement. La scène de l'église, le meurtre de ce prêtre, cette dernière bénédiction, sont d'un réalisme poignant, et l'"amen" de la fin, ricané par le tambour, fait presque dresser les cheveux sur la tête.

"La Graphologie," amusant monologue, où un monsieur "prudent," voulant, avant de conclure, connaître le caractère de sa femme, s'adresse à un graphologue. Malheureusement l'autographe était de la main du "papa," et il en est pour ses cent sous.

Dans la scène V du premier acte de "Le roi s'amuse," M. de Saint-Vallier nous fait passer, dans son apostrophe à François Ier, par toute une série de situations dramatiques. C'est un morceau d'un intérêt puissant. Et quelle orchestration! Et quel silence dans la salle! Comme le disait en sortant un des auditeurs, "On aurait entendu trotter une souris."

"Love," pour faire diversion, une gentille boutade, pleine de lyrisme convaincu, d'espérances égarées, et se terminant par un éclat de rire.

Pour faire diversion encore, "Une poignée de chansons." "Le nid abandonné," si triste, avec les joies, les soins, les angoisses de la maternité, et l'égoïsme des enfants.

> Vous n'aimerez jamais vos mères
> Autant qu'elles vous ont aimés!

"L'églantine," un regard en arrière sur les folies d'antan.

"Au clair de la lune," une bien vieille chanson, bien connue aussi, surtout le premier couplet. Mais on n'a pas tous les jours l'occasion de l'entendre dans son entier, et "chantée" avec talent.

"La Garonne," où les hâbleurs du Midi sont finement et justement raillés. Nous disons "justement," mais il ne faut pas oublier qu'en France (pour parodier le mot de Daudet) tout le monde a un peu des défauts du Midi sans en posséder toujours les nombreuses qualités.

"La Fileuse," dite par Mlle Capdevielle. Tous les grands moments de la vie peuvent être symbolisés par un simple fil. C'était l'idée des Anciens qui avaient imaginé les Parques. C'est ainsi qu'une vieille grand'mère peut filer tour à tour des langes d'enfant, un voile de mariage, un suaire. Il y a là ample matière à une diversité d'émotions que Mlle Capdevielle a très fidèlement reproduites.

"Le Naufragé" de Coppée, avec cette heureuse variante que M. Barlet l'a dit en costume. Un vieux loup de mer raconte qu'il avait un seul ami au monde, un chien. C'était le compagnon de ses voyages, son consolateur dans les rudes expériences de la vie de mousse. Après un naufrage, le mousse et son chien se trouvent seuls sur un canot désemparé. On souffre, sous un soleil torride, les tortures de la soif et de la faim. Le jeune marin les supporte, mais le chien devient enragé. Il lui faut le tuer. Et cette mesure de défense, le vieux matelot se la reproche comme un crime.

"Jean-Marie." Jean-Marie est censé avoir péri au mer. Thérèse, sa fiancée, a enfin accepté, pour chasser la misère du foyer et adoucir les dernières années de sa vieille mère, d'épouser le vieux Joël. Jean-Marie reparaît inopinément. Et nous nous trouvons en présence de l'éternel problème, la lutte de l'amour et du devoir, problème qui peut se poser à chacun de nous. C'est le sentiment qui a pénétré l'auditoire, lequel a passé par toutes les phases de la joie, du doute, de la colère, de l'espoir, du découragement, du désespoir, de l'acceptation finale du fait accompli. Il faut dire aussi que la pièce a été interprétée admirablement, et Mlle Capdevielle a parfaitement réussi à faire comprendre les angoisses d'une âme placée dans une terrible alternative, mais que son grand amour même ne saurait détourner de la sainteté du devoir.

En somme, cette séance a été à la fois intéressante, instructive et émouvante; et c'est ce qu'a fait ressortir M. Ruf, qui a remercié M. Barlet et sa gracieuse collaboratrice.

REVIEWS.

Victorian Literature.

The Literature of the Victorian Era. By Hugh Walker, LL.D., Professor of English in St. David's College, Lampeter. (10s. net. Cambridge University Press.)

Prof. Walker introduces his comprehensive survey with a chapter on "The New Age," and another on "The German Influence," especially through Carlyle. In the former, he essays to examine the common phenomenon of rise and fall in literature—a phenomenon markedly exemplified in his period. "The explanation is doubtless to be sought in the rise and decay of ideas"; thus, in English literature, the French Revolution appeared to some "a sacred manifestation" (as Mr. Bodley says), and to others, a quarter of a century later, a mere subject of study and criticism. It may be that "the true significance of the years after 1825 will be missed unless we bear in mind that they were the seed-time of all the rich literature of the early and intermediate Victorian era"; but why should the seed-time of a future period follow, and not be concurrent with, the present, so as to obviate a gap? But, if literature has relations with politics, "it has relations still more intimate and vital with the conceptions which underlie religion and philosophy." Accordingly, Prof. Walker inquires which of the fundamental ideas of religion and philosophy lived on into the Victorian era, and which of them were rejected, reversed, changed, or developed. While noting the earlier German influences and giving due credit to Coleridge, the author signalizes Carlyle as "the really efficient intermediary between the mind of Germany and that of England," and holds that "it is not less for this fact than because of his own intrinsic greatness that Carlyle is the best introduction to the literature of the Victorian era." His treatment of Carlyle is singularly discriminating.

We now come to Part I. This is devoted to a survey of "Speculative Thought" in three divisions—Theology, Philosophy, and Science. The theologians are reviewed in four groups: the Evangelicals, by far the most powerful at the start; the Noetics, and their successors of the Broad Church; the followers of Coleridge; and the exponents of the Catholic Reaction—that is, the Oxford Movement—whom Prof. Walker regards as the most interesting of all. The philosophers are the lights of the Scottish, Utilitarian, and Positivist Schools, the English Hegelians (with Martineau), and some writers on historical and economic subjects. The scientific writers dealt with are mainly such as have been concerned with geology and biology (with the kindred science of anthropology). "It was the change in the former which paved the way for the great development of the latter; and it has been the new ideas originated in the latter which more than any other single cause have revolutionized modern thought." Here are the great names of Lyell, Darwin, Spencer, and Huxley.

Part II (pages 240–817) is the main body of the work. It treats of "Creative Art" in two divisions—Poetry and Prose Fiction; the former at more than double the length of the latter, with spacious prominence to Tennyson and Browning, the minor poets, however, being amply treated in groups. In the prose section, Dickens and Thackeray naturally occupy the front, a separate chapter is given to the women novelists, and the rest are "The Later Fiction," discriminatingly proportioned Part III is a sort of appendix, dealing with History and Biography, Literary and Æsthetic criticism, and miscellaneous prose.

Such in outline is the mechanism of the book. The extent of it permits a large comprehensiveness and full scope for the treatment of the more important figures. The critical judgments appear to be exceptionally sound, and the influences determining the groupings and the lines of succession to be shrewdly traced. In a word, the volume is excellent in its kind; only we must add the obvious caution that its true value will be missed unless students acquaint themselves freely with the works that it passes in review, and test their own impressions by the conclusions of their text-book.

But Prof. Walker's achievement is great enough to lead one to inquire further whether his volume might not be usefully recast. What is his conception of "literature"? Admitting the influences of politics, theology, philosophy, science, and everything else, upon literature, one cannot but feel that in a history of "literature" these should be treated, adequately indeed, but still as ancillary or incidental, and not as substantial. In Part I, for example, the literary qualities are subordinated to the technical qualities: what has literature to do with Austin's "Jurisprudence"? Again, the varied elements arranged and exemplified in books on English Composition and Rhetoric have everything to do with literature; and, as we have had occasion to remark before now, there is not a book of English literature that might not have been better as literature if the author had given careful study to the language he was working in. If the book in hand is a history, the student needs to know the qualities of the construction of the narrative; if it is an exposition, he wants to know whether the exposition is conducted on good or on faulty lines. Prof. Walker, of course, notes how Thackeray lowered the character of his work "by its spasmodic character": "most of his novels were written by snatches, in varying moods, at intervals of a month." He refers to Meredith's later lack of lucidity and "wanton indulgence in cryptic utterances," and he speaks of the "scrupulous conscientiousness" of Stevenson's craftsmanship (which, we must interject, never reached the goal of concealing its art). But such things are gross and palpable; and what seems needed is to get beyond the broad characters and the occasional decorations and deformities to the essential elements of construction, even to the handling of the sentence and the paragraph. The late Prof. Minto led the way. Prof. Walker's conception of "literature" seems to have taken him too far in one direction and not far enough in another and far more important direction. The influences of other departments of thought deserve an adequate place in a history of literature; the enumeration and description of the works of such thinkers must be ruled out of place, except in so far as the purely literary aspects are considered. The higher qualities of literary works command due prominence; the more mechanical qualities are too important to be neglected. All this seems strangely obvious; but there is a perversely narrow tradition. It is not every literary historian, however, that we should take the trouble to reason out of it.

"That Ancient Man."

The Stone Ages in North Britain and Ireland. By the Rev. Frederick Smith. (16s. net. Blackie.)

Mr. Smith has been sedulously picking up stones and studying them for some forty years, mostly in Scotland, but also considerably in England and in Ireland, with a view to discover characteristics of Palæolithic man, if Palæolithic man had ever been a denizen of North Britain. He has figured 521 stones in this handsome volume, and described them and discussed their significance with engaging directness and enthusiasm. In dealing with the glaciers, he concludes that his evidential specimens corroborate the opinion he had formed many years ago "that the relics of Palæolithic man in Scotland were destroyed or hidden away by the last great glaciation; that it is in glacially formed, the gathered and stored up glacial, deposits that the relics of this man are to be found." Such relics are identified as weapons, instruments for domestic uses, &c. While disposing them, for the purpose of systematic study, in a progressive series from the more unwrought and clumsy to the more skilfully designed and wrought, the author guards himself against dogmatizing as to which form or mode of production led the way to higher types. "My experience," he says, "leads me to believe that the more clumsily made weapon or implement need not necessarily be older, and may be ages younger, than others more elegantly or more elaborately formed. Geological and geographical position is much more reliable evidence of antiquity than mere form and style of work." Three long and most interesting chapters are devoted to handles; the handle was "a great achievement." The fashioning of handles "is a pronounced feature among the presumed Palæolithic relics from Scotland"; and, in England, "though, on the whole, the search resulted in inferior specimens, full illustration of Palæolithic man's appreciation of the handle was found, the inferiority being due not so much to a want of conception of the utility of the handle or of ability to produce the same as to the more intractable nature of the flint itself." Further:

> One of the most interesting results of this prolonged investigation is a remarkable series of fabrications which entirely proves (1) that the typical *Neolithic* forms—*i.e.*, the chisel-like and broad-edged and bell-shaped polished axes—are the direct outcome of certain commonly used *domestic* (?) Palæolithic forms; and (2) that, as this fact clearly shows, there was no great void in time, no "hiatus," between the epochs of Palæolithic and Neolithic man.

The single chapter on "Glacial Man in Hibernia" records the results of four visits to Ireland, and confounds the general opinion that Palæolithic man never existed in that country. "If I had desired at the hands of Nature the strongest proof of the correctness of my views concerning the vast antiquity of the Scottish forms and of their counterparts from the English deposits," says the author, "I could not have anticipated anything more convincing than what lay before me on landing in the neighbourhood of Dublin."

Mr. Smith's general conclusion is expressed broadly in the course of a description of certain weapons of "surprisingly bold and clever" sculpturing, facilitated by the greater tractability of the Scottish material under the stroke of the freehand worker as compared with restrictions of form and substance imposed by the English flint nodules, although they are replicas of English examples:

> Men who could make such weapons knew well how to use them: we shall, indeed, see that they were full of expedients as necessity demanded. I am convinced that Palæolithic man mounted these forms; that he was a great trapper and hunter; that he did attack even the largest of the great Mammalia; that he maintained his own during the prolonged epoch or epochs of that great fauna in what are now the British Isles; and that he was a brave and courageous being — no mere scalp-hunter and murderer of his fellows, but a man, as I have said, with a strong domestic strain in his nature, as will be evidenced in the record of these Scottish finds and their corroborations from English deposits.

Now the question of interpretation still remains. Are Mr. Smith's readings fanciful, or is what he has seen actually present in the stones? The specimens are beautifully figured in the volume; and for that the enterprise of the publishers is very highly to be commended, as well as the sagacious generosity of Mr. Walter W. Blackie, B.Sc., in taking Mr. Smith by the hand. Still, the experts will not hasten to a decision without studying the stones themselves. The ways of accident under the compelling force of the waves of the sea or of glacial pressure—we shall leave aside the play of the thermal theory—are not to be lightly ignored. On the face of the work, however, it can be

confidently affirmed that Mr. Smith has, at the very least, proposed a case that demands serious consideration, and is not to be put off by a shrug of the most learned and distinguished shoulders. If he turns out to be substantially right, he has immensely advanced our conceptions of Palæolithic man. And, in any case, he has done great service by his emphatic protest against rigid theories constructed on too limited grounds—theories that pass beyond the question of the dividing line between Palæolithic and Neolithic: "We have been too narrow in our conceptions, too circumscribed by our own devisings of 'types,' and too certain in our definitions in matters of which we have had but a passing view." "The wonderful collection brought together by the author," as Dr. A. H. Keane calls it in his appreciative introduction, is a monument of devoted and laborious investigation, and we shall not be surprised if Dr. Keane should be a true prophet when he expresses the opinion that Mr. Smith's arguments "will be found irresistible." But as "they tear up root and branch the narrow conservative tree under which the leaders of the 'orthodox' party—Cuvier, Owen, Virchow, and Evans, the 'doubting Thomas,' as he was called by his foreign compeers—have hitherto taken shelter," they challenge the most patient and stringent examination.

GENERAL NOTICES.

CLASSICS.

Sophocles in English Verse. Part I: *Oedipus the King; Oedipus at Kolonus; Antigone.* By Arthur S. Way, D.Litt. (3s. 6d. net. Macmillan.)

Dr. Way's hand has lost none of the cunning it manifested in his well known renderings of Homer, Euripides, and Aeschylus. But the art of Sophocles is more difficult to transfuse into English form; and the translator's inversions and preciosities of expression, though only occasional, still too often mar the artistic effect or hamper the flow of the versification, more especially in the dialogue. The choruses for the most part are rendered with spirit, and with the accustomed deftness of turn and mastery of rhyme and rhythm. When all deductions are made, the translation will convey to the English reader an excellent general idea of the original, and lead him to look forward with keen interest to the completion of the work.

"Blackwood's Classical Texts."—*Cicero: Select Letters.* By the Rev. T. Nicklin, M.A., Assistant Master at Rossall, late Foundation Scholar of St. John's College, Cambridge. (2s. 6d.)

Mr. Nicklin selects forty letters, each "chosen for something of interest in it, whether its spirit of domestic affection, its illustration of Cicero's or others' characters and interests, its reflection of the political situation at the time it was written, or the contrast it shows to features in our own time." There is an extensive introduction, biographical and literary; notes copious, careful, and brief; an index of proper names; and half-a-dozen good illustrations. The text is comparatively simple, and the personal element maintains a constant interest. The volume is thoroughly well compiled and edited, and forms a strong addition to an excellent series.

We have great pleasure in welcoming the first issues of the *Classical Quarterly* and the *Classical Review* on their new and firmer footing (3s. net, and 1s. net; or 12s. 6d. and 7s. 6d., post free, yearly: John Murray). The *Quarterly*, containing articles of some length, is published in January, April, July, and October; the *Review*, devoted to notices of books, short original articles, and matters of special interest to teachers, in the other months. Together they constitute the official organ of the Classical Association, and are to be conducted "in the sole interest of classical study as a whole." The scholarship is thoroughly up to date, and the journals are handsomely produced. As an editorial note in the *Review* points out, "their success still depends on the subscribers"; and "it is unfortunately true that English scholars do not feel their responsibility for the furtherance of scholarship as they should: the schools in particular do not do their share either in subscribing or in contributing papers." "The editor appeals, therefore, to readers for papers of two kinds: first, general articles that may show the value of classical study to the man of the world, the politician, the social reformer; and, secondly, records of educational experiments, discussions of professional problems, and anything that may help to improve the practical work of schools or Universities." We hope the appeal will draw forth a ready and efficient response. The Classical Journals Board have made a most praiseworthy effort, which deserves practical recognition at the hands of all that appreciate the value of classical study; and the problems of the classical schoolmaster could not find a better arena of discussion than is now offered to them.

MATHEMATICS.

Elementary Projective Geometry. By A. G. Pickford, M.A., M.Sc., Scholar of St. John's College, Cambridge, Head Master of the Hulme Grammar School, Oldham. (4s. Cambridge University Press.)

The interest in projective geometry has become far more general of

(*Continued on page* 168.)

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late. The present treatise is thoroughly elementary in character, being designed to provide a course suitable for use in schools and by the junior student of the University. Avoiding in general (as unnecessarily difficult for his purpose) the employment of imaginaries and of infinitely distant points, the author confines the discussion to a valuable and careful treatment of the principles of cross ratio, projective rows and pencils, and involution, and to a gradual development of many important properties of second degree curves, such curves being defined (in accordance with the principles of the subject) as loci arising from the intersections of corresponding rays of pairs of projective pencils. The work will prove a welcome and useful text-book.

Conic Sections made Easy. By Sáradákánta Ganjopádhyáya, M.A. (8 annas. Published by The Students' Library, Calcutta.)

A valuable little book, well put together, and likely to make a place for itself among other students besides those for whom the author has more especially planned it. The work follows the syllabus arranged by the Calcutta University for candidates for its Intermediate Examination. The geometry of the conic sections, or rather of the parabola and the ellipse, has been treated as far as possible on lines similar to those adopted by Euclid in his discussion of geometry, and the student of text-books on Euclid has therefore the advantage, in taking up a fresh study, of using methods with which he is already quite familiar. A series of lemmas required in the course of the investigations that follow form an introductory chapter. A large number of exercises, many of them original, serve to illustrate the theory and afford practice in its application. The writer's definitions are excellent, and his "Notes" scattered through the pages of the little volume promise to be both helpful and suggestive. The student learns the importance of geometrical analysis as an instrument in the investigation of problems and theorems and is initiated into its principles. The treatise is fully illustrated by diagrams.

The Invicta Number Scheme. By J. W. Ladner, L.C.P. (1) *Handbook*, for the Teacher. (8d. net.) (2) *Board*, for the Children. (6s. 6d. net per dozen.) (Philip.)

Mr. Ladner has devised an ingenious "method of teaching the fundamental principles of arithmetic by a constant reference to our decimal system of notation through the media of eye and hand as well as ear." The board is $14\frac{1}{2}$ in. by 11 in., with slate surface printed in silver and red; and the handbook offers full explanation of the principles and the working of the system. The scheme "is the outcome of much careful experiment and long experience, having been repeatedly tested and revised in actual class teaching." It helps to realize the concrete appreciation of number, overcoming many of the common difficulties experienced by beginners. Teachers should see the scheme and test it for themselves.

SCIENCE.

"Cambridge Mathematical Series."—*Experimental Mechanics for Schools.* By Fred Charles, B.A., Senior Mathematical Master, Strand School, King's College, London, and W. H. Hewitt, B.A., B.Sc., A.R.C.S., Senior Science Master in the same school. (3s. 6d. Bell.)

The volume is designed "not to replace, but to help the teacher by providing in a convenient form directions for experiments and examples for practice." The experiments are very judiciously chosen, and the directions are pointed and lucid. "The deductions to be drawn from experiments are not stated, but questions are put that should elicit the principles involved"—a vigorous educational method, furnishing scope for both teacher and pupils. The examples to each chapter are varied and testing; and there are appended some three hundred miscellaneous examples, a number of examination papers, and a series of forty-one practical examples. The work has been carefully thought out and most capably executed. It cannot but be very efficiently helpful in the schools in the hands of a strong master.

Practical Chemistry. By James Bruce, Ph.D. Munich, B.Sc. Lond., F.I.C., A.R.C.S. Lond., &c., Head of the Chemistry Department of the Technical College, Huddersfield, and Harry Harper, A.R.C.S. Lond., Head of the Chemistry Department of the Trade and Grammar School, Keighley. (2s. 6d. Macmillan.)

The authors "have felt the need of a laboratory manual more general in character than those commonly used." They introduce a selection of typical preparations of inorganic compounds as "a most valuable preliminary to the study of the analytical methods adopted for the detection and separation of the elements." They presume that students will bring to their book some knowledge of elementary chemistry; but, to make sure, they give a short explanation of the usual laboratory appliances and methods. Qualitative analysis is treated fully enough for most practical purposes, and quantitative work is dealt with in a simple manner, volumetric and gravimetric analysis being handled so as to form an efficient introduction to these branches. The work is thoroughly practical and capable, and will be extremely helpful in view of examinations. There are sixty-two figures.

The Amateur Astronomer. By Gideon Riegler. Translated by George Aubourne Clarke. (3s. 6d. net. Fisher Unwin.)

This is a handy little volume "for those who have already done observational work in astronomy as well as for those who wish for the first time to become acquainted with the heavens." After remarking on the selection of a site for observation, and discussing the instrumental equipment of the amateur astronomer, the author reviews systematically the celestial bodies. The treatment is quite simple; there is no space to inquire deeply into the reasons and causes of the heavenly phenomena, but the student will be stimulated to seek further knowledge elsewhere. Incidentally numerous historical points of astronomical development are noted. An excellent guide for the beginner.

MODERN LANGUAGES.

"Ginn's International Modern Language Series."—(1) *Legends, Tales, and Poems.* By Gustavo Adolfo Becquer. Edited by Everett Ward Olmsted, Ph.D., Assistant Professor of the Romance Languages in Cornell University. (4s. 6d.) (2) *Fortuna*, and *El Placer de No Hacer Nada.* By Enrique Pérez Eserich. Edited by Edward Gray. (2s. 6d.)

(1) "Becquer's literary importance," wrote Mrs. Humphry Ward (*Macmillan's Magazine*, February, 1883), "is only now beginning to be understood." Mr. Olmsted furnishes a concise biography, "perhaps the most complete that has yet been published," personally gathered in part from friends of Becquer. He claims that the present volume "is the only annotated edition of this author's works that has been published as yet for English-speaking students." It certainly forms an excellent introduction to Spanish literature. For the poetical pieces, the editor supplies a brief but sufficient sketch of Spanish versification. The notes, which are not very numerous, are pointed and useful. A full vocabulary is appended. (2) *Fortuna* is a short and simple story in wholesome tone, and not without dramatic situations; the second sketch occupies but four pages, and "may be called a species of literary trifling, in good humour." The slim volume provides excellent reading for beginners in Spanish. The notes will helpfully supplement the vocabulary; and there is a series of exercises based on the text of *Fortuna*.

"Modern Language Series."—*A Primer of Colloquial German.* By Albert Thouaille, M. ès A., Principal of the Gouin School, Manchester, and E. Nonnenmacher, of Vienna University. (2s. 6d. Philip.)

The volume is "based on the principles of Gouin's Series method, combining the practical use of the living language with a systematic study of the vocabulary, idioms, and grammar." The method is fully explained and discussed in the preface. The material of the hundred lessons is disposed in three successive sections: In der Schule; Zu Hause; In der Stadt. It is worked up progressively with great care and judgment, so that a pupil cannot but obtain a strong hold of the language. An outline of formal grammar follows, and a full vocabulary completes the work. The title "Primer" seems somewhat weak for so substantial a book. Like M. Thouaille's French Course, the present volume is sure of a warm welcome in the schools.

A forcible pamphlet, *Uniformity in Languages and Language Study*, with special reference to the Interim Report of the Joint Committee on Grammatical Terminology, by Mr. R. A. Williams, D.Litt., Professor of German and Lecturer in Anglo-Saxon at Trinity College, Dublin, has just been issued from the Dublin University Press. The Interim Report is only Dr. Williams's starting-point in an effort "to contribute to the solution of various questions of absorbing interest in the domains of grammatical theory and the theory of language study." He has two main theses to illustrate in connexion with topics suggested to him by reading the Committee's Report: (1) that uniformity of grammatical terminology as regards different languages is useless where there is no real uniformity in grammatical phenomena; and (2) that the question of this uniformity in the school is only a part of a much wider question, which calls at any rate for full discussion, even if its practical solution is not immediately possible. And "both these theses coalesce in an idea of higher order, the historical, in so far as I see in the present confused situation the working of historical forces of differentiation, whose due appreciation I hold to be of the first necessity." The Committee will no doubt give full consideration to Dr. Williams's views.

ENGLISH LITERATURE FOR SCHOOLS.

"The Riverside Literature Series." (Harrap.)

We have accumulated some half-a-dozen volumes of this varied and elaborate series.—(1) *Beowulf, and the Finnesburh Fragment*, translated by Clarence Griffin Child, Assistant Professor of English in the University of Pennsylvania. (1s.) (2) *Malory's The Book of Merlin* and *The Book of Sir Balin*, edited by C.G. Child. (1s.) (3) *The Courtship of Miles Standish* (Longfellow), arranged in seven scenes for school and home theatricals (1s.) (4) *English and Scottish Popular Ballads*, selected and edited for study under the supervision of William Allan Neilson, Professor of English, Harvard University, by R. Adelaide Witham. (1s. 3d.) (5) *The Prologue, The Knight's Tale, and The Nun's Priest's Tale* (Chaucer's Canterbury Tales), edited by Frank Jewett Mather, Jr., Ph.D., formerly Assistant Professor of English and the Romance Languages in Williams College. (1s. 6d.) (6) *The Song of Roland*, translated into English Prose by Isabel Butler. (1s. 6d.) (7) *Selected Poems of Shelley*, edited by George Herbert Clarke, M.A., formerly Professor of English in Mercer University. (1s. 6d.) The biographical and literary introductions are very full; the notes, explanatory and illustrative, are abundant; and glossaries are appended where necessary. Generally the workmanship is careful and competent. The volumes are strongly and tastefully got up.

(1) *Macaulay's History of England, Chapter III*, edited, with Introduction and Statistical Notes, by A. L. Bowley, M.A., Reader in Statistics in the University of London. (2s. 6d.) (2) *The Spanish Military Nun* and *Revolt of the Tartars* (De Quincey), edited by V. H. Collins. (2s. Clarendon Press.)

(1) Macaulay's text is usefully divided into sections with subject headings, and some foot-notes of explanation or reference are furnished. The statistical notes, especially those referring to the development of London (illustrated by several diagrams), are extremely interesting and suggestive. (2) Mr. Collins gives De Quincey's notes as well as notes of his own, and a map to illustrate each of the papers constituting the text. Excellent editions, admirably printed and got up, and handy in form.

(1) *Anson's Voyage Round the World*, 1740–1744: selections edited by C. G. Cash, F.R.S.G.S., Edinburgh Academy. (1s. 3d. net.) (2) *Selections from Wordsworth*: an Introduction to Romance in Literature. By Adam Fox. (2s. net. Alston Rivers.)

(1) A concise introduction contains a sketch of Anson's life, and outlines and comments upon the voyage; and there is a map indicating the general line of the route. A portrait of Anson stands as frontispiece. No notes are supplied. (2) The Wordsworth selections are arranged in four groups: lyrical, narrative, reflective, and odes and sonnets. The introduction discourses instructively, and at some length, on the poet's views, predecessors, and poems. The notes are few and brief. The volumes are well printed and usefully got up. They furnish good reading for school or for home.

ENGLISH LITERARY READERS.

"Horace Marshall & Son's New English Reading Books." Edited by C. L. Thomson.

Book I consists of *Fairy Tales* and poetical pieces. Book II retells certain *Nature Myths and Tales*—especially the story of Hiawatha and the King of the Golden River (1s.). Book III is devoted to *Stories and Poems of Sea Adventure*—notably the Argonauts, Ulysses, and Robinson Crusoe (1s. 3d.). Book IV reproduces *Heroic Myths, Poems, and Sagas*—Perseus, the Wooden Horse, Alkestis, Horatius, Siegfried, Ogier the Dane, &c. (1s. 6d.). Book V contains *Tales of Empire*, literary extracts of a patriotic nature, centring round such themes as King Alfred, Shakespeare, the Expansion of the Empire, Wellington, the Indian Mutiny, &c. (1s. 6d.). Book VI furnishes *World Tales*, literary extracts of a cosmopolitan character, dealing with such subjects as Alexander the Great, Julius Caesar, Virgil, Charlemagne, the Cid, Dante, Luther, Frederick the Great, Washington, Garibaldi, &c. (1s. 6d.). "The material is chosen for its literary excellence, its appeal to the imagination, and its power of widening the outlook of the pupil." Word lists are appended to the first three books; the others have no annotations. The series is admirably adapted to its purpose; the illustrations are abundant and engaging; and the volumes are liberally and strongly got up.

"Black's Literary Readers." Books III and IV. Written and edited by John Finnemore. (1s. 4d. and 1s. 6d.)

The specialty of this series, as we have already mentioned, is "that in all Books above the Second an attempt is made to show how Britain came by her world-wide empire." In the Third Book, accordingly, the special lessons deal with general considerations—how Colonies are gained, their uses, and how they benefit and are benefited by the mother country. The Fourth Book treats specially of North America. But the special feature is not allowed to overweight the books and turn them into history readers; three-fourths of the prose consists of matter of general interest. There is a good admixture of verse. "Spellings and meanings" for the various chapters are appended. The illustrations in colour and in black and white are very numerous and good. The series is attractively and skilfully compiled, and the volumes are well got up.

"Chambers's Wonder Readers." Books I–III. Book I, *Golden Gates*, 7d. Book II, *Fairy Fancies*, 9d. Book III, *Old World Stories*, 1s.

The volumes consist of well written and suitable versions or originals of favourite stories from Grimm, Andersen, Hawthorne, the Arabian Nights, &c., with attractive verses interspersed. They are liberally and effectively illustrated and well got up. There are no annotations. A very attractive series.

HISTORY.

A School History of Great Britain and Ireland. By G. W. Prothero, M.A., Litt.D. (2s. 6d. Nelson.)

Dr. Prothero has compressed the history of these islands within the compass of a single volume of some five hundred pages. The difficulties of such a task are many, but the author has skilfully selected his materials, and has presented clearly and graphically the great events of our historical development. Domestic history receives by far the most attention, but foreign policy and the growth of our colonial empire are treated sympathetically, though only in outline. The chronological method is utilized, but only when suitable for the presentation of the facts of great movements. The general get-up of the book is excellent; the colour illustrations impart additional interest to the letterpress; and the appendix will be found very useful. In so concentrated a work some errors are almost certain to occur. "The law establishing a censorship of the

(*Continued on page* 170.)

CLERGY MUTUAL ASSURANCE SOCIETY,

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press came to an end" in 1693 (not "in 1695"), and when, two years later, suggestions were made for its renewal, Parliament refused to entertain them. The "sliding scale" to regulate prices of corn was in operation long before 1841; the income-tax, also, was *revived* in 1842, and renewed for three years more in 1845. Further, if General Nicholson was "the hero of the siege" of Delhi, it was only in the gallery sense; the man that did the effective business was Colonel Baird Smith, the chief engineer. However, the book will prove of great value to pupils in secondary schools. It should find a place in every school library and on the desk of every teacher of British history.

Notes on British History. By W. Edwards, M.A. (Three Parts, 2s. each. Rivingtons.)

The purpose of these "Notes" is to give a clear and concise survey of the leading events of contemporary European history, of the development of the constitution, and of the growth of industry and agriculture. Embracing the period 55 B.C.–1783 A.D., these little volumes present in an attractive manner the salient facts concerning the outstanding movements of modern history. They have been compiled in accordance with the latest Suggestions of the Board of Education and are well up to date. The leading works on the subject have been drawn upon for contribution to the various sections, and references are given for wider reading. Considerable care has been expended in the selection of material, which has in the main been judiciously chosen. But really King John did not *sign* Magna Carta, nor was Archbishop Grindal compelled to *resign* his See. The reference "Wild Geese" (Weymau) is misplaced: the novel depicts Irish life in 1718, not in 1695. The foot-note on the Statute of Uses will hardly be intelligible to pupils ignorant of the law of real property. The compilation, however, will be extremely useful, particularly to those preparing for scholarships at the Universities, and for matriculation and similar examinations.

RELIGIOUS AND MORAL.

The Birth and Growth of Toleration, and other Essays. By the Rev. J. O. Bevan, M.A., F.G.S., Assoc.Inst.C.E., F.S.A., &c., Rector of Chillenden, Dover. (5s. net. Allen.)

The score of Essays constituting the volume were originally delivered to various gatherings of laity and clergy. They fall mainly into four groups—(1) those dealing with comparative history; (2) those relating to problems concerning the rationalization of miracle; (3) those addressed *ad clerum;* and (4) those of a general character affecting the community at large. The title essay involves not only a difficult historical summary, but also keen analytical criticism. We are loth to touch miracles or to inquire into "clerical errors" or to estimate the honesty or the dishonesty of any religious group or to discuss any of the religious questions handled by the author. Let it suffice to say that the difficulty of a position rather invites than dissuades Mr. Bevan's efforts, and that his treatment of all problems remains as broad-minded as ever: "he has endeavoured to speak his mind freely, even at the risk of shocking weaker brethren." On the other hand, it may be that he runs the risk of shocking stronger brethren, for he sometimes starts with a desperate run, yet shies at the fence. Still, this is obviously not from lack of courage. Anyhow, the essays bear on their face indications of prolonged and earnest thought guided by the multifarious appliances of scientific investigation, and they will be found to be very stimulating as well as interesting and instructive.

The Hebrew Prophets for English Readers. Edited by Francis H. Woods, B.D., sometime Fellow and Theological Lecturer of St. John's College, Oxford, Rector of Bainton, and Francis E. Powell, M.A., late Vicar of Sowerby and Grindale. In four volumes. Vol. II. (2s. 6d. net. Clarendon Press.)

The text is in the language of the Revised Version of the English Bible; the poetical passages are printed in their poetical form; and headings and brief annotations are furnished. A great amount of instructive matter is compressed into the introductions. The present volume includes Zephaniah, Nahum, Habakkuk, and Jeremiah. We repeat our very favourable opinion of the first volume and apply it unreservedly to the second, and we are glad to note that the first volume has found its way into the schoolroom.

CHARTS—WALL PICTURES—DIALS.

Messrs. Longmans issue a fine series of twelve *Historical Wall Pictures*, illustrating typical scenes from British history at as many points from Roman times to the present day, and reproduced in colour from paintings from authentic sources by H. J. Ford (2s. 6d. net, unframed). Each picture is 24 in. by 18 in., on a card 30 in. by 25 in. The subjects selected are probably as striking landmarks as could be chosen, and Mr. Ford has been at great pains to secure an accurate archæological reconstruction. The pictures are instructive and suggestive representations, and the bold outlines are filled in with elaborate details. The reproduction is most skilful and successful.

Messrs. Longmans also publish a series of *Natural History Wall Pictures*, representing the flowers and the butterflies and moths characteristic of the April to September months, some of the months (in the specimens before us) being illustrated by more than one picture (2s. 6d. net each, unframed). The size is 18 in. by 14 in., the card being 25 in. by 20 in. The pictures are admirably designed and coloured: they are beautifully reproduced from drawings by A. Thorburn. They will make fresh and attractive adornments of the schoolroom. *Descriptive Notes for Teachers* (6d.) should be used with pictures: the Notes on Flowers are by C. J. Longman, and Notes on Butterflies and Moths are by W. S. Furneaux.

The Scholar's Cartoons, published by Mr. Franz Hanfstaengl, illustrate representative scenes in history and social life: the Phœnicians in Britain, Columbus sighting the New World, Robin Hood in Sherwood Forest, &c. The lithograph series is 30½ in. by 21 in.; the colour series is 28 in. by 21 in., narrow margins included. Both series are in bold outline; the latter series (5s. 6d. each print) has the added advantage of bright and varied colouring.

Messrs. Asher & Co. issue a smaller and cheaper edition (31½ in. by 12 in., 2s. each) of six of the best pictures in the series of Gertrud Caspari's *Children's Friezes*. The pictures are clear and not overcrowded, and the colours are vivid. The friezes are very suitable decorations for kindergarten and infant-school rooms.

Messrs. E. J. Arnold & Son publish *The "A.L." Rules and Courtesies of the Road*—a large chart (45 in. by 35 in.), setting forth in red and black print clear and simple rules and directions for users of the highway and the footpath (mounted on cloth, with rollers, varnished, 3s. 9d. net). The lessons of this chart would obviate numberless accidents and inconveniences. The idea is excellent, and the execution is artistic and effective.

Messrs. Philips furnish *Standard Time Dials*, designed by Prof. R. A. Gregory, of Queen's College, London, the Northern Hemisphere and the Southern Hemisphere represented on the opposite sides of stout wooden board (16½ in. by 19 in., 3s. 6d. net). On each side of the board is printed a clock face showing the hours from 1 to 12 a.m. and p.m., and within the circles formed by the numerals are placed rotating discs bearing coloured maps of the respective hemispheres. A simple adjustment shows at once the relation of local standard time and Greenwich time. The device is ingenious and serviceable.

Messrs. James Munro & Co. (King Street, Tradeston, Glasgow) publish a *Tempometer, or Horometrical Chart* (2s. 6d. net), consisting of a clock dial printed in colours and mounted on a stout card, in the centre of which is a revolving disc, by means of which the local mean time, latitude, and longitude of the principal cities, towns, and other landmarks throughout the world can be seen at a glance. Below the dial is a calendar arranged so as to show the years, months, weeks, and days since the introduction of the new method of time into Britain (1752 A.D.), and on to 2000 A.D. The device is clever, and it is artistically presented.

MISCELLANEOUS.

Messrs. Collingridge have just issued *The City of London Year Book and Civic Directory for* 1910. (5s. net.) This is a new work taking the place of *The City of London Directory*, which the same firm had published for some forty years. It justly claims to be "an authoritative guide to everything that pertains to the civic and commercial life of the City of London, containing much exclusive information which cannot be found in so handy a form elsewhere." The educational activity of the Livery Guilds is carefully noted. The work has been compiled with great judgment and with much labour, and it is generously produced.

The Book of Plymouth, just published by Messrs. Jack in connexion with the Conference of the National Union of Teachers, is pronounced by the *Western Daily Mercury* to be "quite the most attractive souvenir of Plymouth ever issued to any public body visiting the town." The praise is well deserved. It is a substantial volume, containing excellent articles on every subject of interest to visitors in and near Plymouth, and brightened by many portraits and other illustrations. The volume has been capably edited by Mr. C. W. Bracken, B.A., Head Master of the Corporation Grammar School, on behalf of the Press Committee of the N.U.T., with the assistance of Mr. A. L. Strachan, honorary Secretary of the Committee.

FIRST GLANCES.

English Literature.

Bell's Literature Readers.—The Three Midshipmen (Kingston). 1s.

Blackie's English Texts.—(1) Grimm's Fairy Tales. (2) Hans Andersen's Fairy Tales. (3) Poe: The Gold Bug, and other Tales. 6d. each.

Chambers's Standard Authors.—Little Women (Alcott). 1s.

Longmans' Class Books of English Literature. — (1) Selections from Richard Jefferies, with Introduction and Notes by F. W. Tickner, M.A., B.Sc., and portrait of Jefferies. (2) The Third Chapter of Macaulay's History of England, edited by David Salmon, Principal of Swansea Training College. 1s. each.

Nelson's Cameos of Literature.—No 3, The Gleeman, a Book of Stories in Song, edited by Richard Wilson, B.A.; No. 4, A Book of English Prose, edited by W. Jenkyn Thomas, M.A. 1s. 6d. each. [Good selections; brief commentary appended. Illustrations.]

Nelson's Short Studies in English Literature.—No. 16, Portia (from "The Girlhood of Shakespeare's Heroines," by Mrs. Cowden Clarke); No. 17, The Merchant of Venice (Shakespeare); No. 18, Boswell's Life of Johnson (extracts forming a continuous bio-

graphy); No. 19, Longfellow's Shorter Poems; No. 20, Augustine, and The Black Prince (from Dean Stanley's "Memorials of Canterbury"). 6d. each, cloth boards.

[100 pages each volume. Short appendix and occasional footnotes. Frontispiece.]

Nutt's Juvenile Library.—Midshipmen Afloat; or, Life in the Navy Fifty Years Ago. With Introduction by Lieutenant-General Sir W. Wright, K.C.B. (Royal Marines). Frontispiece in colour. 1s. 6d.

Oxford Plain Texts.—(1) Byron: The Prisoner of Chillon, Mazeppa, and The Lament of Tasso. 4d. (2) Milton: Paradise Lost. Book I. 4d. (3) Milton: Paradise Lost. Book II. 4d. (4) Shelley: Adonais, Alastor, and other Poems. 4d. (5) De Quincey: The Spanish Military Nun, and Revolt of the Tartars (with a map to each story). 1s. (6) Macaulay's History of England. Chapter III (with paragraph headings). 1s. (7) Spenser: The Faerie Queene. Book I. 1s.

Select English Classics. — Selections from Boswell's Johnson, Gray's Elegy and Odes, Selected Sonnets of Milton and Wordsworth, and Selected Essays of Charles Lamb, combined in one volume. 1s. 3d. Clarendon Press.

[For Oxford Local Examinations, 1911.]

English Literary Readers.

"A. L." Bright Story Readers (edited by Alfonzo Gardiner).—Grade P (preparatory, ages 5–7): No. 3, Old World Stories (of the Greeks and Romans), prepared by the Editor. 1½d.—Grade I (ages 6–8): No. 16, The Little Tin Soldier, and The Tinder-Box (Andersen), prepared by W. H. Webster. 2d.—Grade II (ages 7–9): No. 29, The Travelling Companion, and The Little Match Girl (Andersen), prepared by J. R. Cowans. 2½d.—Grade V (ages 10–13): No. 54, Some Legends of Greece and Rome, prepared by the Editor. 4d. E. J. Arnold (Leeds).

Blackie's Story-Book Readers. — James Graham, Earl of Montrose (from Scott's Tales of a Grandfather); with Aytoun's Execution of Montrose. Map to illustrate Montrose's campaigns. 4d. (limp cloth).

Burnt Njal, Stories from the Saga of (Dasent). Part I, The Story of Gunnar. Adapted by Beatrice E. Clay, B.A., Head Mistress of the Queen's School, Chester. 1s. 6d. Horace Marshall.

[Introduction sketches Icelandic life and customs. Frontispiece (the Althing at Reykjavik), and twelve other illustrations.]

Chambers's Narrative Readers.—Set B: (1) The White Cat (by Countess D'Aulnoy); (2) The Story of Fairyfoot (adapted from Frances Brown). Set C: (1) The Golden Touch and (2) The Pigmies (adapted from Hawthorne). Set D: (1) The Dragon's Teeth, (2) The Three Golden Apples, and (3) The Chimera (all adapted from Hawthorne). Set E: (1) Circe's Palace, (2) The Pomegranate Seeds, (3) The Quest of the Golden Fleece, (4) The Minotaur, (5) The Gorgon's Head (Hawthorne). 2d. each.

Harrap's "All Time Tales."—(1) Old Celtic Tales, retold by E. M. Wilmot-Buxton, F.R.Hist.S. (2) The Story of Siegfried, retold from Richard Wagner by J. Walker McSpadden. (3) Tales from the Eddas, retold by E. M. Wilmot-Buxton. (4) Tales of Early England, retold by E. M. Wilmot-Buxton. (5) A Book of Nature Myths, retold by Florence Holbrook. (6) Gisli the Outlaw (Dasent), retold by the Rev. Albert E. Sims. 9d. each.

Legends of Music, told simply for the Lower Standards. By Gladys Davidson. 3d. Jack.

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Oliver and Boyd's Continuous Readers.—Senior Group: (1) Perseus and Theseus, (2) The Argonauts (both from Kingsley's "The Heroes"). Frontispiece to each. 4d. each, limp cloth; 3d. each, paper covers.

The Romance Readers (edited by C. L. Thomson).—6, Stories from Germany. Edited by C. L. Thomson, F.R.Hist.S. 1s. Horace Marshall.

[Twenty-three tales, well told. Illustrations.]

The Temple Continuous Readers (edited by Clifford Dent).—(1) Fairy Tales from the Arabian Nights. (2) Miss Alcott's Little Women. 6d. each.

Supplementary English Readers.

Blackie's Peeps at Many Lands.—(1) Scotland, by Elizabeth Grierson; (2) India, by John Finnemore; (3) Belgium, by George W. T. Omond. 1s. 6d. net each.

["A series of Little Travel Books for Little Readers." Simple, interesting, and agreeably instructive. Each volume has a dozen full-page illustrations in colour. Picture cover.]

Blackie's Supplementary Readers.—Junior: (1) Folk Stories (Grimm), with introduction by John Ruskin; (2) Old-Time Tales (from "The Fairy Book," by the author of "John Halifax, Gentleman"); (3) From Sweep to Water-Baby, a Nature Fairy Tale, by Charles Kingsley.—Intermediate: (1) Eric, a Tale of School Life (abridged from Dean Farrar's story), with composition exercises; (2) Lords of the Castle, and other Stories (from "Granny's Wonderful Chair," by Frances Browne); (3) Tales of Wonder (selected from "A Wonder Book" and "Tanglewood Tales," by Hawthorne).—Senior: (1) Great Deeds on Land and Sea (selected from Dr. Fitchett's "Deeds that won the Empire" and "Fights for the Flag"), with composition exercises; (2) Rab and his Friends, and Our Dogs, by John Brown,

(*Continued on page* 172.)

SORE THROATS:

THEIR CURE AND PREVENTION.

"Doctor, is there any danger of diphtheria?"

That is invariably the first question put to the physician about every case of sore throat, proof of the ever present fear of that terrible disease, which often kills almost as rapidly as the plague.

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"Certainly not," says the modern physician; "gargling has long since been relegated to that oblivion which it richly deserves. I am going to prescribe Wulfing's Formamint, the germ-killing throat tablet, the supreme, reliable remedy for all forms of sore throat, for it contains the most powerful germ destroyer in the world."

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The Medical Press of the world has unanimously endorsed its merits both as a means of cure and as a preventive against infection to germ disease.

The commonest germs found in the throat are called Staphylococcus and Streptococcus, and are the cause of bad sore throat and Tonsillitis. Formamint rapidly destroys them. A patient from whose throat 650 colonies of Staphylococcus were grown was given two Formamint tablets in an hour. At the end of that time only 70 colonies were discovered. From the same throat 200 colonies of Streptococcus were obtained. After the two Formamint tablets not one was found.

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Among the distinguished people who use Formamint may be mentioned the Rt. Hon. Arthur J. Balfour, M.P. (the ex-Prime Minister), Sir Thomas Glen-Coats, Bart., M.P., Sir Clifford Cory, Bart., M.P., Mr. Arthur Hamilton Lee, M.P., and the Hon. Mrs. Alfred Lyttelton.

To enable its merits to be tested, the proprietors, Messrs. A. Wulfing & Co., 12 Chenies Street, London, W.C., will send a free sample to all mentioning *Educational Times* who forward a post card to-day.

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M.D., with character sketch of the author, composition exercises, and glossary; (3) Tales from Dickens: a Christmas Carol, and Little Dombey—as abridged by Charles Dickens—with composition exercises. 6d. each.

[Good matter; excellent type; attractive get-up.]

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[Attractive reading; spacious type; strong get-up.]

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Harrap's "Told through the Ages."—(1) The Story of Roland and the Peers of Charlemagne, retold by James Baldwin. (2) The Story of Hereward, the Champion of England, by Douglas C. Stedman, B.A. Dubl. 1s. 6d. each.

[Each volume has a frontispiece and fifteen other full-page illustrations. Mr. Stedman bases his story mainly on the medieval chronicle of the life of Hereward, supported by other ancient chronicles and modern histories. Excellent books both.]

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Junior Schools, Poems for. Edited by C. L. Thomson. Book I, Poems of Spring; Book II, Poems of Summer; Book III, Poems of Autumn and Winter; Book IV, Poems of Home; Book V, Poems of the Fairies; Book VI, Simple Narrative Poems. 3d. each book. Horace Marshall.

[An ample and excellent collection.]

Months and Melodies: a collection of original Stories, Songs, Games, and Recitations for Infants' and Junior Classes. By Bessie Hawkins. 2s. 6d. net. Pitman.

[Part I, Stories and Songs for the Months; Music by R. W. Hawkins. Part II, Nature Study Recitations arranged to suit the Months. Part III, Miscellaneous. Interesting and attractive.]

National Poetry Books, The. Edited by Alfred Perceval Graves. Book V. 4d. Pitman.

[Admirable collection, with brief annotations and biographical notes on the authors.]

Oxford Elementary School Books: First, Second, and Third Books of Verse. 3d., 4d., 4d. Henry Frowde and Hodder & Stoughton.

[Excellent. Pretty frontispiece to each volume.]

EDUCATION.

Board of Education Circular 740: Manual Instruction in Secondary Schools. Revised February, 1910.

Cambridge University Local Examinations. Subjects for July and December, 1911. Complete Regulations for 1911 ready on June 1.

Cape of Good Hope. Report of the Superintendent-General of Education (Dr. Thomas Muir) for the year ending September 30, 1908.

Carnegie Foundation for the Advancement of Teaching. Fourth Annual Report of the President and of the Treasurer. 1909.

Columbia University. Report of President Butler. 1909.

English Association, The. Leaflet No. 14: The Early Stages in the Teaching of English. 6d. Secretary, Miss Elizabeth Lee, 8 Mornington Avenue Mansions, West Kensington, W.

Johns Hopkins University Circular. No. 1, 1910: Report of the President of the University. No. 2: Notes from the Physical Laboratory; Commemoration of Simon Newcomb (1835–1909).

London Chamber of Commerce, The, and its Work. Address by Mr. C. E. Town, Assistant Secretary.

London County Council. (1) Report of the Education Officer for 1908–9. Part II, Provision of Meals for Necessitous Children and the Work of Children's Care Committees, 1s.; Part III, Special Schools and Industrial Schools, 1s.; Part IV, Accommodation and Attendance in Elementary Schools, 1s.; Part V, Higher Education, 9d. (2) Conference of Teachers, 1910: Report of Proceedings. 1s. 6d. King.

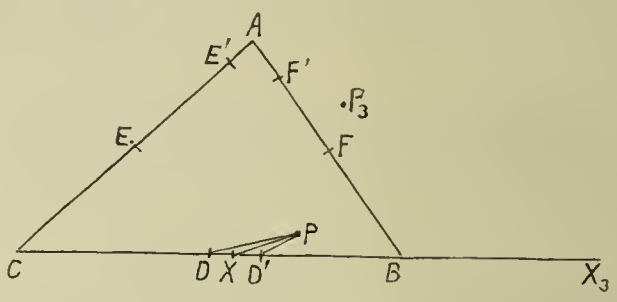
The Revival of Learning. Oration delivered at University College, London (June 3, 1909) by Dr. H. A. Miers, Principal of the University of London. 6d. Published by the Union Society of the College.

MATHEMATICS.

16803. (M. T. NARANIENGAR, M.A.)—If x, y, z denote the distances of the point of contact of the in-circle (or ex-circle), and the nine-point circle from the feet of the altitudes, and a, b, c the sides of the triangle, show that $ax \pm by \pm cz = 0$.

Solution by B. C. WALLIS, B.Sc., F.C.P.

Let $a > b > c$; D, E, F be the mid-points; X be the point of contact of the in-circle; D′, E′, F′ be the feet of the altitudes; P the common point of the in-circle and the nine-point circle.



In "The Nine-point Circle," by W. Gallatly, M.A., it is proved:—

(i), by Art. 3, that XP bisects $\angle$ DPD′.

(ii), by Art. 1, that PD : PE : PF = $(b-c) : (a-c) : (a-b)$.

But $$\frac{\text{PD}}{\text{PD}'} = \frac{\text{DX}}{\text{D}'\text{X}} = \frac{\frac{1}{2}(b-c)}{\sqrt{a(b-c)(s-a)}} = \frac{a}{2(s-a)},$$

and $$\frac{\text{PF}}{\text{PF}'} = \frac{c}{2(s-c)};$$

therefore $$a.\text{PD}' + c.\text{PF}' = 2[\text{PD}(s-a) + \text{PF}(s-c)]$$
$$= 2\left(\frac{\text{PE}(s-a)(b-c)}{a-c} + \frac{\text{PE}(s-c)(a-b)}{a-c}\right)$$
$$= 2\frac{2\text{PE}}{a-c}(sb - sc - ab + ac + sa - sb - ac + bc)$$
$$= \frac{2\text{PE}(a-c)(s-b)}{a-c} = 2\text{PE}(s-b) = b.\text{PE}'.$$

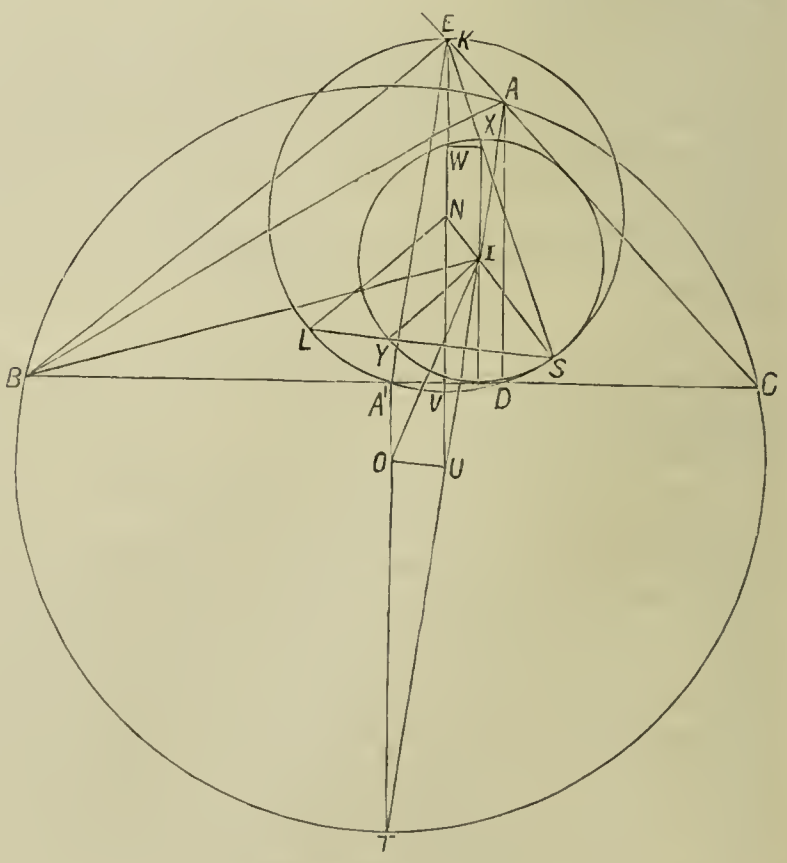
Similarly for the out-circle, P_3X_3 bisects externally DP_3D', and

$$\frac{\text{EP}_3}{\text{E}'\text{P}} = \frac{b}{2(s-a)}, \quad \frac{\text{FP}_3}{\text{F}'\text{P}_3} = \frac{c}{2s};$$

therefore $$b.\text{E}'\text{P}_3 + c.\text{F}'\text{P}_3 = 2(s-a)\text{EP}_3 + 2s.\text{FP}_3$$
$$= \frac{2\text{DP}_3}{b+c}[(s-a)(c+a) + s(a+b)]$$
$$= \frac{2\text{DP}_3}{(b+c)}[(b+c)(s-b)]$$
$$= 2\text{DP}_3(s-b) = a.\text{D}'\text{P}_3.$$

Feuerbach's Theorem.—Proof by W. F. BEARD, M.A.

Let ABC be a triangle; O, I, N its circum-, in-, and nine-point



centres; AD, BE, CF its altitudes; A′, B′, C′ the mid-points of its sides.

Let NK, IX be the radii of the nine-point and in-circles parallel to DA, and NL, IY the radii parallel to EB. Let KX, LY meet at S; then, because the triangles KNL, XIY have the sides KN, NL parallel and proportional to XI, IY; therefore NI goes through S. Let KN meet BC, AI at V, U, and let AI meet OA′ at T. Join OI, OU, A′K, KD. Draw XW perpendicular to KN. Because KN bisects A′D at right angles; therefore AU = UT and $\angle A'KU = \frac{1}{2}\angle A'KD$; therefore

$$\angle A'KU = \tfrac{1}{2}(C-B) = \angle ATA';$$

therefore KA′TU is a parallelogram, and KA′ = UT. OU is perpendicular to AT, because TU = UA. Thus KV/KA′ = TU/OT; therefore

$$KV.R = TU^2,$$

also $\qquad 2rR = AI.IT$ and $WV = 2r$;

therefore $\qquad R.KW = TU^2 - AI.IT = UI^2$ .....(i),

and because $\angle IUN = \angle UTO$; therefore XW/IU = OU/OT; therefore R.XW = UI.OU; therefore, from (i), KW/XW = UI/OU; therefore $\angle XKW = \angle OIU$. Similarly, $\angle NLS = \angle OIB$; therefore

$$\angle NKS + \angle NLS = \angle BIT = 90° - \tfrac{1}{2}C.$$

But $\angle LNK = \angle KSL + \angle NKS + \angle NLS$ and $\angle LNK = 180° - C$;

therefore $\qquad \angle KSL = 90° - \frac{1}{2}C = \frac{1}{2}\angle LNK = \frac{1}{2}\angle XIY.$

Thus S is on both the nine-point and in-circles, and NI, the line of centres, goes through S a common point; therefore the in- and nine-point circles touch at S. A similar proof holds for the ex-circles.

11610. (D. Edwardes, B.A.)—An elliptic cylinder rotates about its axis with small angular velocity ω in an infinite mass of viscous liquid. If the motion is steady and there is no slipping at the surface, prove (1) that the current function is $\psi = \frac{1}{4}\omega c^2(e^{-2\eta} + \cos 2\xi + 2\eta\cosh 2\beta)$, where ξ, η are conjugate functions, such that $x + \iota y = c\cosh(\eta + \iota\xi)$, and $\eta = \beta$ at the surface of the cylinder; (2) that the pressure at any point is $p = p_0 + (2\mu\omega\sin 2\xi)/(\cosh 2\eta - \cos 2\xi)$, p_0 being the pressure at infinity, and μ the coefficient of viscosity; and (3) that the couple which must be applied, per unit length of cylinder, in order to maintain the motion, is $2\pi c^2\mu\omega\cosh 2\beta$.

Solution by the Proposer.

If $x + \iota y = c\cosh(\eta + \iota\xi)$, then $x = c\cosh\eta\cos\xi$, $y = c\sinh\eta\sin\xi$,

$$h^2 \equiv (\partial x/\partial\xi)^2 + (\partial x/\partial y)^2 = \tfrac{1}{2}c^2(\cosh 2\eta - \cos 2\xi).$$

The components of velocity, along the orthogonal curves are

$$1/h\,(\partial\psi/\partial y),\quad -1/h\,(\partial\psi/\partial\xi).$$

The equation of continuity, $\partial/\partial\xi\,(hU) + \partial/\partial\eta\,(hV) = 0$, is then satisfied identically.

The equations of the steady motion are

$$\frac{\partial p}{\partial\xi} = \mu\frac{\partial}{\partial\eta}\left(\frac{1}{h^2}\nabla_1^2\psi\right),\quad \frac{\partial p}{\partial\eta} = -\mu\frac{\partial}{\partial\xi}\left(\frac{1}{h^2}\nabla_1^2\psi\right),$$

where $\qquad V_1^2 \equiv (\partial/\partial\xi)^2 + (\partial/\partial\eta)^2.$

These give at once $\nabla_1^2 p = 0$, and $\nabla_1^2(1/h^2.\nabla_1^2\psi) = 0$,

or $(\cosh 2\eta - \cos 2\xi)\,\nabla_1^2\nabla_1^2\psi - 4\sin 2\xi\,(\partial/\partial\xi)\,\nabla_1^2\psi - 4\sinh 2\eta\,(\partial/\partial\eta)\,\nabla_1^2\psi$

$$+ 4(\cosh 2\eta + \cos 2\xi)\,\nabla_1^2\psi = 0 \quad \text{.....(A).}$$

At the boundary, where $\eta = \beta$, if there is no slipping, we must have

$$(\partial\psi/\partial\xi)_{\eta=\beta} = -\tfrac{1}{2}\omega c^2\sin 2\xi,\quad (\partial\psi/\partial\eta)_{\eta=\beta} = \tfrac{1}{2}\omega^2\sinh 2\beta.$$

Assume $\psi = H_1 + H_2\cos 2\xi$, where H_1. H_2 are functions of η alone. Substituting in (A), and equating to zero the coefficients of the powers of $\cos 2\xi$, we get $\qquad H_2^{iv} - 4H_2'' = 0$ .....(1),

$$-H_1^{iv} - 4\sinh 2\eta\,(H_2'' - 4H_2') + 4H_1'' = 0 \text{.....(2)}$$

[using (1)], and

$$\cosh 2\eta H_1^{iv} + 4\cosh 2\eta H_1'' - 32H_2 + 8H_2'' - 4\sinh 2\eta H_1''' = 0 \text{.....(3).}$$

Now, at a great distance from the boundary, h is of order e^η, and since the velocity must vanish when $\eta = \infty$, no terms involving $e^{2\eta}$, or $\eta e^{2\eta}$, can occur in the values of H_1 and H_2. It follows then from (1) and (2) that $H_2 = C$, a constant, $H_1^{iv} - 4H_1'' = 0$, the appropriate solution of which is $H_1 = Ae^{-2\eta} + B\eta$. Substituting these values of H_1, H_2 in (3), it becomes $32A - 32C = 0$, therefore A = C, and therefore

$$\psi = A(e^{-2\eta} + \cos 2\xi) + B\eta.$$

Substituting in the boundary equations, A and B are determined, and we have the stated result for ψ. We have

$$\nabla_1^2\psi = \omega c^2(e^{-2\eta} - \cos 2\xi).$$

Then
$$\frac{1}{\mu}\frac{p}{\partial\xi} = 2\omega\frac{\partial}{\partial y}\frac{e^{-2\eta} - \cos 2\xi}{\cosh 2\eta - \cos 2\xi} = -2\omega\frac{\partial}{\partial y}\frac{\sinh 2\eta}{\cosh 2\eta - \cos 2\xi},$$

$$\frac{1}{\mu}\frac{\partial p}{\partial\eta} = -2\omega\frac{\partial}{\partial\xi}\frac{e^{-2\eta} - \cos 2\xi}{\cosh 2\eta - \cos 2\xi} = 2\omega\frac{\partial}{\partial\xi}\frac{\sinh 2\eta}{\cosh 2\eta - \cos 2\xi}.$$

Hence
$$p = p_0 + 2\mu\omega\frac{\sin 2\xi}{\cosh 2\eta - \cos 2\xi},$$

since
$$\frac{\sin 2\xi}{\cosh 2\eta - \cos 2\xi} \quad\text{and}\quad \frac{\sinh 2\eta}{\cosh 2\eta - \cos 2\xi}$$

are conjugate functions of ξ and η. If q be the resultant velocity at (ξ, η), we have

$$q^2 = \frac{1}{h^2}\left\{\left(\frac{\partial\psi}{\partial\eta}\right)^2 + \left(\frac{\partial\psi}{\partial\xi}\right)^2\right\} = \tfrac{1}{2}\omega^2c^2\frac{(e^{-2\eta} - \cosh 2\beta)^2 + \sin^2 2\xi}{\cosh 2\eta - \cos 2\xi}.$$

The rotation (ζ) is given by $2\zeta = 1/h^2.\nabla_1^2\psi$. If N be the required couple per unit length of cylinder,

$$N\omega = 4\mu\iint\zeta^2.h^2d\xi\,d\eta - \mu\int\frac{\partial q^2}{\partial n}\,ds + 4\mu\int(lv - mu)\,\zeta\,ds$$

(Lamb, *Hydrodynamics*), where $h^2d\xi\,d\eta$ is an element of area, $ds = h_\beta d\xi$ is an element of the bounding ellipse, and $\partial n = h\,\partial\eta$. The second line-integral vanishes. Also

$$\int\frac{\partial q}{\partial n}\,ds = \int_{-\pi}^{\pi}\frac{\omega^2c^2}{h_\beta}\sinh 2\beta\left\{2(e^{-2\beta} - \cosh 2\beta) + \cosh 2\beta - \cos 2\xi\right\}$$
$$/(\cosh 2\beta - \cos 2\xi)\,h_\beta d\xi$$
$$= \omega^2c^2\sinh 2\beta\left\{2\pi - 2\sinh 2\beta.2\int_0^\pi\frac{d\xi}{\cosh 2\beta - \cos 2\xi}\right\}$$
$$= -2\pi\omega^2c^2\sinh 2\beta,$$

$$\int_\beta^\infty\int_{-\pi}^{\pi}\zeta^2.h^2d\xi\,d\eta = \tfrac{1}{2}\omega^2c^2\int_\beta^\infty\int_{-\pi}^{\pi}\frac{(e^{-2\eta} - \cos 2\xi)^2}{\cosh 2\eta - \cos 2\xi}\,d\xi\,d\eta$$
$$= \tfrac{1}{2}\omega^2c^2\int_\beta^\infty\int_{-\pi}^{\pi}\frac{(\cosh 2\eta - \cos 2\xi - \sinh 2\eta)^2}{\cosh 2\eta - \cos 2}\,d\xi\,d\eta$$
$$= \tfrac{1}{2}\pi\omega^2c^2e^{-2\beta}.$$

Hence $\qquad N = 2\pi\mu\omega^2c^2(e^{-2\beta} + \sinh 2\beta) = 2\pi\mu\omega^2c^2\cosh 2\beta.$

Additional Remarks.

Stokes's result for the circular cylinder may be deduced from the above by making c tend to zero, while η and β increase indefinitely in such a way that

$$b = a = \tfrac{1}{2}ce^\beta,\quad r[= c/2^{\frac{1}{2}}(\cosh 2\eta + \cos 2\xi)^{\frac{1}{2}}] = \tfrac{1}{2}ce^\eta.$$

Then ψ becomes $\omega a^2\log r$, and the velocity components therefore $-\omega a^2y/r^2$, $\omega a^2x/r^2$. If the liquid is contained in the cylinder, we know that the whole should rotate as a rigid body, and, in fact, the complete values of H_1, H_2, found from equations (1), (2) involve six constants, reducing to five when these values are substituted in (3). Near a focus, where ξ, η are small, and h of order $(\eta^2 + \xi^2)^{\frac{1}{2}}$, the condition that the motion should be finite thereat necessitates the vanishing of all but one of these constants, and ψ becomes $\frac{1}{2}\omega c^2(\cosh 2\eta + \cos 2\xi)$ or $\frac{1}{2}\omega r^2$, where $r^2 = x^2 + y^2$, giving $u = -\omega y$, $v = \omega x$, everywhere.

Note.—These results were deduced originally from the case of a rotating ellipsoid, "Steady Motion of a Viscous Liquid," *Quarterly Journal*, 1892.

16732. (W. Gallatly, M.A.)—Resolve

$$bc(b+c)(a^2 + ac + c^2 - b^2)(a^2 + ab + b^2 - c^2) + \ldots + \ldots$$

into seven factors.

Solutions (I) *by* Professor Nanson *and many others;* (II) *by* D. Biddle.

(I) It is readily verified that the expression

$$\frac{bc(b+c)}{b^2 + c^2 + bc - a^2} + \frac{ca(c+a)}{c^2 + a^2 + ca - b^2} + \frac{ab(a+b)}{a^2 + b^2 + ab - c^2}$$

vanishes when $b + c = \pm a$ or 0. Hence the given expression is equal to

$$(b+c)(c+a)(a+b)(b+c-a)(c+a-b)(a+b-c)(a+b+c).$$

(II) The quantity to be factorized is, in full, as follows:—

$$\begin{array}{lllll} & (1)(2) & (3) & (4) & (5) \\ \text{(i)} & \ldots\ldots\ bc & (b+c) & (a^2 + ac + c^2 - b^2) & (a^2 + ab + b^2 - c^2) \\ \text{(ii)} & \ldots\ldots + ca & (c+a) & (b^2 + ba + a^2 - c^2) & (b^2 + bc + c^2 - a^2) \\ \text{(iii)} & \ldots\ldots + ab & (a+b) & (c^2 + cb + b^2 - a^2) & (c^2 + ca + a^2 - b^2) \end{array} \text{.....(A).}$$

Note the identities in (4) and (5), and the components of (3) in (1) and (2) of other terms. Summing the five-factored terms in pairs,

$$\left.\begin{array}{ll} \text{(i)} + \text{(ii)} & = (a+b)\{c^2(c+a)(b+c) + c(a-b)[b(b+c) - a(c+a)] \\ & \qquad \times\{a^2 + ab + b^2 - c^2\} \\ \text{(ii)} + \text{(iii)} & = (b+c)\{a^2(a+b)(c+a) + a(b-c)[c(c+a) - b(a+b)]\} \\ & \qquad \times\{b^2 + bc + c^2 - a^2\} \\ \text{(iii)} + \text{(i)} & = (c+a)\{b^2(b+c)(a+b) + b(c-a)[a(a+b) - c(b+c)]\} \\ & \qquad \times\{c^2 + ca + a^2 - b^2\} \end{array}\right\}\text{...(B).}$$

Comparing each sum with the term not included in it, we find that $(a+b)$, $(b+c)$, $(c+a)$ are severally factors of the given quantity as a whole. But, in order to divide the given quantity by the product of those three factors, we must use the term factors above placed apart.

$$(A) = (a+b)(b+c)(c+a)\left\{\begin{array}{l}\text{(i)} \ldots\ldots (a^2+c.c-b^2)(a^2+b.b-c^2)\\ \text{(ii)} \ldots + (b^2+a.a-c^2)(b^2+c.c-a^2)\\ \text{(iii)} \ldots + (c^2+b.b-a^2)(c^2+a.a-b^2)\end{array}\right\} \ldots(C).$$

In (C), (i) $= a^4-(b^2-c^2)^2$, (ii) $= b^4-(a^2-c^2)^2$, (iii) $= c^4-(b^2-a^2)^2$; and the sum of these is $2a^2b^2+2a^2c^2+2b^2c^2-a^4-b^4-c^4$, which is the product of $(a+b+c)$, $(a+b-c)$, $(a-b+c)$, $(-a+b+c)$. Consequently these four and $(a+b)$, $(b+c)$, $(c+a)$ are the seven factors required. They exhaust the given quantity, but may themselves be composite. Thus, let $a = 7$, $b = 11$, $c = 17$. Then (A) $= 115577280$, the factors of which, found as above, are 18, 24, 28, 35, 1, 13, 21. But

$$(A) = 2^6.3^4.5.7^3.13,$$

having 15 prime factors.

The PROPOSER remarks:—This question is the algebraical equivalent of the formula

$$(\sin B+\sin C)(1+2\cos B)(1+2\cos C)+\ldots = 4(\sin B+\sin C)(\ )(\ ),$$

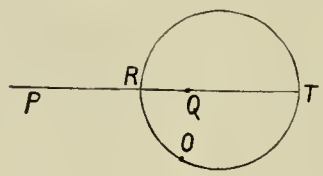
where $A+B+C = 180°$.

16726. (M. T. NARANIENGAR, M.A.)—Given a chord PQ of a conic, and a point R on it, find, geometrically, a point O on the conic such that OR shall be equally inclined to OP and OQ. Discuss the number of solutions.

Solution by W. F. BEARD, M.A. *and* A. M. NESBITT, M.A.

Divide PQ externally at T, so that

$$(PQ, RT) = -1.$$



On RT as diameter describe a circle cutting the conic at O. Then

$$O(PQ, RT) = -1, \text{ and } \angle ROT = 90°;$$

therefore OR bisects $\angle POQ$. Since either R or T must be within the conic, the circle will always cut the conic in two real points.

16808. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show how to resolve $N = (x^6+27y^6)$ into five factors algebraically for certain (integer) values of x, y. *Ex.*—Give one or more examples of $N > 10^{20}$ completely resolved into prime factors.

Solution by the PROPOSER.

Let $N = A.T$, where $A = (x^2+3y^2)$, $T = (x^4-3x^2y^2+9y^4)$. One resolution of the Trin-Aurifeuillian (T) into two co-factors (L, M) is well known, viz., $L = (A-3xy)$, $M = (A+3xy)$. If a second (algebraic) resolution $T = P'^2-Q'^2 = L'.M'$ could be found, the problem would be solved.

$$\text{Let} \quad T = (Cx^2+3y^2)^2-x^2[(6C+3)y^2+(C^2-1)x^2]$$
$$= P'^2-Q'^2, \quad \text{if } (6C+3)y^2+(C^2-1)x^2 = z^2 \text{ (a square)}.$$

If this last Diophantine equation—here termed the "Factorisant"—can be solved for certain values of C, every solution (x, y, z) gives values of x, y such that $T = L'.M'$, where $L' = (P'-Q')$, $M' = (P'+Q')$; and this factorisation is usually different to the former $N = L.M$, so that L, M must have factors in common with L′, M′. By finding the G.C.M., say l of (L, L′), m of (M, M′), λ of (L, M′), μ of (M, L′), T is resolved into the four factors $T = lm\lambda\mu$ (so that N itself is hereby resolved into five factors).

To apply this practically, values of C must be found that will yield solvable factorisants. Any small number $T_0 = (x_0^4-3x_0^2y_0^2+9y_0^4)$ will suffice for this.

Ex.—Take $T = 7 = 1^4-3.1^2+9.1^4$, whence $x_0 = 1$, $y_0 = 1$; $P_0' = \pm 4$, $Q_0' = 3$. Here $P_0' = Cx_0^2+3y_0^2 = \pm 4$; $P_0' = +4$ gives $C = 1$, which is ineffective. But $P_0' = -4$ gives $C = -7$, whence the factorisant is $-39y^2+3(4x)^2 = z^2$. Every solution (x, y, z) of this last gives a solution of the problem.

One of the most interesting series of solutions is found by taking $y = y_0 = 1$ (const.), whereby the factorisant becomes

$$(4x)^2-3(\tfrac{1}{3}z)^2 = 13.1^2.$$

Then, with the help of the unit-form $7^2-3.4^2 = +1$, the successive solutions (x_r, y_r, z_r) may now be found by the usual succession-formulæ, which (on reduction) become

$$x_{r+1} = 7x_r+z_r, \quad z_{r+1} = 48x_r+7z_r;$$

and the co-factors of T are $L_r' = (P_r'-Q_r')$, $M_r' = (P_1'+Q_r')$, where

$$P_r' = 7x_r^2-3, \quad Q_r' = x_rz_r.$$

By using the above double resolution $T_r = L_r.M_r = L_r'.M_r'$, the numbers T_r will be found to be completely resolvable by the large factor-tables (*i.e.*, l, m, λ, μ will be all $< 9.10^6$) up to T_5 inclusive.

As $x_0 = \pm 1$, two series of (x_r, z_r) may be formed. The elements (y_r, z_r) of these and the co-factors L_r', M_r' (completely resolved) as far as $r = 5$ are shown below. The remaining factor A_r of N_r is shown only as far as $r = 3$ (not being resolvable by the large factor-tables when $A_r > 9.10^6$).

	$r = 0$	1	2	3	4
Series 1.	x, z = 1, 3	10, 69	139, 263	1936, 13473	26965, 186819
	L′ = 1;	1 : 7;	73 : 19;	7.37 : 1039;	14449 : 3613;
	M′ = 1 : 7;	73 : 19;	7.37 : 1039;	14449 : 3613;	67.751 : 7.28753,
	A = 4;	103;	4.4831;	3748099;	

	$r = 0$	1	2	3	4
Series 2.	x, z = 1, 3	4, 27	55, 381	766, 5307	10669, 73917
	L′ = 1 : 7;	1;	7 : 31	409 : 103;	1429 : 5719;
	M′ = 1;	7 : 31;	409 : 103	1429 : 5719;	79633 : 43.463;
	A = 4;	19;	4.757;	61, 9619;	

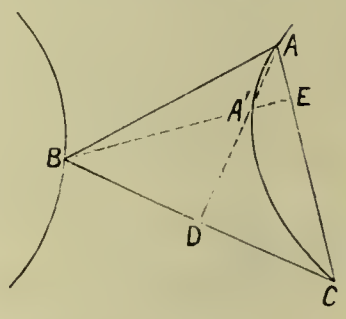
	$r =$	5
Series 1 (*continued*)	x, z =	375574, 2602053
	L′ =	67.751 : 7.28753;
	M′ =	1627.1723 : 700831;

	$r =$	5
Series 2 (*continued*)	x, z =	148600, 1029531
	L′ =	79633 : 43.463;
	M′ =	7.7.5459 : 1109167;

The colon (:) is used above to separate the factors l, μ of L′, and λ, m of M′. It will be seen that the successive numbers T_0, T_1, T_2, ... form a "chain," *i.e.*, are such that $M_r' = L_{r+1}'$ throughout. [This is a property common to all quartic numbers (T) formed as above with y constant.] This greatly aids the factorisation; as the factors l_r, m_r, λ_r, μ_r can be separated by aid of those of the preceding L_{r-1}', M_{r-1}' without the labour of actually finding the G.C.M.

16706. (W. F. BEARD, M.A. Suggested by Question 16467.)—Prove that, if a rectangular hyperbola circumscribed about a triangle, touches one of the altitudes, the triangle must be right-angled.

Solutions (I) *by* CLEMENT V. DURELL; (II) *by* R. IATA.



(I) The rectangular hyperbola touches the altitude AD of the triangle BAC. Let A′ be the consecutive point to A on the curve. Then the rectangular hyperbola formed by the line-pair AD, BC meets the given rectangular hyperbola at ABCA′; therefore any other conic through these four points is a rectangular hyperbola; therefore BA′, CA is a perpendicular line-pair—*i.e.*,

$$\angle BAC = 90°.$$

(II) It is obvious that a vertex of the triangle must be the point of contact, for if it be the orthocentre the altitude would meet the curve in two distinct points. Let the equation to the hyperbola be

$$\lambda\beta\gamma+\mu\gamma\alpha+\nu\alpha\beta = 0.$$

The equation to the altitude from C of the triangle of reference is

$$\alpha\cos A-\beta\cos B = 0.$$

Equation to the tangent at C is

$$\alpha/\lambda+\beta/\mu = 0.$$

If these be identical $\quad \lambda\cos A+\mu\cos B = 0 \quad \ldots\ldots\ldots\ldots(1).$

Since the curve passes through the orthocentre

$$\lambda\cos A+\mu\cos B+\nu\cos C = 0;$$

therefore, from (1), $\nu\cos C = 0$; therefore $\cos C = 0$, since $\nu \neq 0$; therefore $C = \frac{1}{2}\pi$. *Cf.*, Russel's *Pure Geometry*, p. 66, Ex. 1.

QUESTIONS FOR SOLUTION.

16842. (J. H. M.)—AB is the horizontal line of intersection of two slopes of elevations θ, ϕ. A ball is to be thrown with given velocity v from the former slope to land as high as possible on the other, the air resistance being supposed negligible. Show that the projection must be from a point in AB unless $2\theta+\phi > \frac{1}{2}\pi$. If this inequality is satisfied, show that the distance from AB that can be reached is $v^2/2g\cos\theta\sin(\theta+\phi)$ and find the corresponding level of projection.

16843. (*Communicated by* F. COTTRELL.)—Prove that

$$d^n/dx^n(x^n\sin x) = n!(P\sin x+Q\cos x),$$

where
$$P = 1-{}^nC_2\frac{x^2}{2!}+{}^nC_4\frac{x^4}{4!}-\ldots,$$

and
$$Q = {}^nC_1x-{}^nC_3\frac{x^3}{3!}+{}^nC_5\frac{x^5}{5!}-\ldots.$$

16844. (Professor ESCOTT.)—In the recurring series u_0, u_1, u_2, ..., et the scale of relation be

$$u_n = a_1u_{n-1}+a_2u_{n-2}+\ldots+a_ku_{n-k}.$$

Show that the determinant

$$\begin{vmatrix} u_r & u_{r+1} & u_{r+2} & \dots & u_{r+m-1} \\ u_{r+1} & u_{r+2} & u_{r+3} & \dots & u_{r+m} \\ u_{r+2} & u_{r+3} & u_{r+4} & \dots & u_{r+m+1} \\ \dots & \dots & \dots & \dots & \dots \\ u_{r+m-1} & u_{r+m} & u_{r+m+1} & \dots & u_{r+2m-2} \end{vmatrix}$$

has the value zero when $m > k$, and has the value

$$a_k^r (-1)^{r(k-1)} \mathrm{D} \quad (\mathrm{D} = \text{a constant})$$

when $m = k$.

16845. (C. M. Ross, B.A.)—Evaluate the definite integral

$$\int_0^a \int_0^b \frac{dx\,dy}{(x^2+y^2+c^2)^{\frac{1}{2}}}.$$

16846. (Professor Sanjána, M.A.)—Let λ stand for the limit of the natural logarithm of $n!\,e^n/n^{n+\frac{1}{2}}$ when n becomes infinitely large; b_r for $1/(r+1)-1/2r$, and s_r for the series

$$1/1^r + 1/2^r + 1/3^r + \dots \text{ ad inf.}$$

Prove that $\quad 1-\lambda = b_2(s_2-1) + b_3(s_3-1) + b_4(s_4-1) + \dots$

$$= b_2s_2 - b_3s_3 + b_4s_4 - b_5s_5 + \dots,$$

and that $3-2\lambda-\frac{3}{2}\log 2 = 2b_2(s_2-1) + 2b_4(s_4-1) + 2b_6(s_6-1) + \dots$.

[These series are closely analogous to those for Euler's constant given by Euler and Legendre.]

16847. (Professor Sanjána, M.A.)—Prove that

$$\frac{S_2-1}{2} + \frac{S_4-1}{4} + \frac{S_6-1}{6} + \dots = \frac{2^{-1}}{2} + \frac{2^{-2}}{4} + \frac{2^{-3}}{6} + \dots,$$

where $\quad S_r \equiv \frac{1}{1^r} + \frac{1}{2^r} + \frac{1}{3^r} + \dots$ ad inf.

16848. (C. M. Ross, B.A.)—If $a+b+c=0$, show that

$$\tfrac{1}{4}(a^4+b^4+c^4) = \tfrac{1}{8}(a^2+b^2+c^2)^2.$$

16849. (R. C. Archibald, Ph.D.)—Is it possible, by Euclidean geometry, to draw a tangent from *any* point to an Astroid (so called four-cusped hypocycloid)? Show that it is possible for any point on the bisectors of the angles between the cuspidal tangents. Show that a similar result may be stated for the "tetracuspide" of Bellavitis. [For properties of this curve see *Sposizione de Metodo delle Equipollenze*, Modena, 1854, 189–191, or the translation in *Nouv. Annales de Math.*, 1874 (2), t. XIII, 229, 230.]

16850. (A. H. S. Gillson.)—The normals at the points (ρ_1, α_1), (ρ_2, α_2), (ρ_3, α_3) on the cardioide $r = a(1+\cos\theta)$ are concurrent. Show that (1) if $\alpha_1+\alpha_2+\alpha_3 = 2\psi$, the locus of the point of concourse is a straight line, which makes an angle ψ with the initial line, and which for all values of ψ cuts the initial line at a distance $\frac{1}{2}a$ from the pole. (2) Prove that if $1/\rho_1 + 1/\rho_2 + 1/\rho_3 = n/a$, the locus of the same point is a conic passing through the pole, and having its centre on the initial line, this conic being an ellipse, parabola or hyperbola, according as $2n \lesseqgtr 9$; and, in particular, a rectangular hyperbola if $n = 9$.

16851. (A. M. Nesbitt, M.A.)—Trace the curves

(1) $x(y^2-ax)^2 = a^5$, (2) $y^5 = x(a^2-xy)^2$, (3) $a(y^2-ax)^2 = x^5$.

16852. (M. T. Naraniengar, M.A.)—In a parabola TP, TQ are two tangents, and S is the focus. If the circle TPQ cuts PS and QS produced in P′ and Q′ respectively, prove that SP = SP′ and SQ = SQ′.

16853. (S. Narayana Aiyar.)—The auxiliary circles of the four conics circumscribing a triangle ABC with S as focus are so related that they always touch a fifth circle; and this circle is the pedal circle, with respect to S, of the triangle formed by the fourth harmonics of the pencils A {BC, S−}, B {CA, S−}, C {AB, S−}.

16854. (C. E. Youngman, M.A.)—In a rectangular hyperbola, if the chords BC, CA, AB subtend 60° or 120° at the vertices, the normals at A, B, C will meet at a point.

16855. (Professor Neuberg.)—On prolonge les bissectrices AA′, BB′, CC′ des angles d'un triangle ABC de quantités égales à elles-mêmes, c'est-à-dire de A′A″ = AA′, B′B″ = BB′, C′C″ = CC′. Trouver le rapport des aires des triangles A″B″C″, ABC.

16856. (W. F. Beard, M.A. Suggested whilst solving Question 16689.)—C is any point on a fixed chord AB of a circle X, and O is any fixed point. ADE is drawn parallel to OC to meet the circle X at E, and the circle through A, O, B at D. Prove OC.DE is constant for all positions of C.

16857. (D. Biddle.)—Let AB be the base of a semicircle, and, on the opposite side of AB and perpendicular to it, draw BC. Join AC, and, perpendicular to this, draw CD = BC. Repeat the process n times, and, with A as centre and the final join as radius, draw an arc cutting the circle, described with B as centre and BC as radius, in P. Join PB and produce, to meet the original semicircle in Q. Prove that, provided $(n-1)\,\mathrm{BC} < 2\mathrm{AB}$, $\mathrm{QB} = \frac{1}{2}(n-1)\,\mathrm{PB}$.

16858. (*Communicated by* T. W. Chaundy, B.A.)—If Ω, Ω' are the Brocard points of a triangle ABC, and O its circum-centre, show that the semi-vertical angle of the isosceles triangle $\Omega O \Omega'$ is the Brocard angle of the triangle ABC, and that the expression $\Sigma\,(b^2-c^2)^2/a^2b^2c^2$ remains unaltered in value when the sides of the triangle $O\Omega\Omega'$ replace those of the triangle ABC. Show how the differences and the product of the squares of the sides of the triangle $O\Omega\Omega'$ can be expressed *rationally* in terms of the differences and the product of the squares of the sides of the triangle ABC.

16859. (Professor Nanson.)—If the sum of the six angles α, β, γ, α', β', γ' is two right angles, then

$$\Pi \sin(\alpha'+\beta+\gamma)$$
$$= \Sigma \sin\alpha \sin\alpha' \sin(\alpha'+\beta+\gamma) + \sin\alpha \sin\beta \sin\gamma + \sin\alpha' \sin\beta' \sin\gamma'.$$

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

11873. (R. W. D. Christie.)—In forming the convergents to $\sqrt{P}$ [a prime of form $(4n-1)$], prove that (1) the cycle is always odd; (2) the middle divisor is invariably 2; (3) the middle convergent is the greatest *odd number* in $\sqrt{P}$; (4) that the convergents may be written down backwards or forwards; and (5) that this theorem corresponds to the famous one of the $(4n+1)$ primes being equal to two integral squares.

12075. (J. F. Hudson, M.A.)—If a and b are any two numbers prime to one another, show that every other number is of the form $ax-by$, where x and y are integers.

12084. (Elizabeth Blackwood.)—If A, a, B, b, C, c are six points taken at random in the perimeter of a square, find the chance that straight lines equal to Aa, Bb, Cc can be the sides of a triangle.

12085. (G. F. Walker, M.A.)—n equal uniform rods of mass m are freely jointed together end to end, and placed in the form of a regular polygon, A, A_1, A_2, ..., A_{n-1}, of n sides. The joints A_2, A_3, ..., A_{n-2} are then joined to A by light inelastic strings which are just tight, and the system is hung up by the joint A, and hangs in a vertical plane under the action of gravity. Show that the tension of the string AA_r is $2mg \sin(r\pi/n)$.

12136. (M. Brierley.)—Draw two tangents to two given circles, so that they may intersect each other at a given angle and their sum may be equal to a given line.

12375. (Professor Whitaker.)—Two men wish to buy a grindstone, 42 inches in diameter, and 1 foot thick at the centre. To what thickness at the outer edge should the stone uniformly taper from the centre, that each man may grind off 18 inches of the diameter and both have equal shares, the central 6 inches of the diameter being waste?

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Thursday, March 10th, 1910.—Sir W. D. Niven, President, in the chair.

Messrs. L. Narayan and S. Brodetsky were elected members.

The following papers were communicated:—

"The Scattering of Light by a Large Conducting Sphere": Mr. J. W. Nicholson.

"The 3-3 Birational Space Transformation": Miss H. P. Hudson.

"The Expression of the Sum of the r-th Powers of the First n Natural Numbers and other Similar Functions of n in Terms of $n+\frac{1}{2}$, and Forms for the Remainder in the Euler-Maclaurin Sum-Formula": Mr. W. F. Sheppard.

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EXAMINATIONS.

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CONTENTS.

	Page
Leader: The Secondary Schools Association	183
Notes	184
New Report of the Board of Education—Board's proposed Action to remedy defects in School Buildings—Secondary Problems exercising the Board—Prof. Sadler's Forecast of the trend of Educational Policy—Report of the Education Officer of the L.C.C.: Important Advances and Broad Outlook—Educational Progress in Ontario—Drain of Teachers to the West.	
The late Miss Mary E. Warne	185
Summary of the Month	186
Universities and Colleges	189
Cambridge — London — Dublin — Belfast — Grenoble—Cape—Joint Matriculation Board.	
The Educational Ladder	190
Conférences Françaises: Emile Zola à Londres. Par M. George Petilleau	191
An Educational Experiment. By J. C. Wright	192
The College of Preceptors:	
Meeting of the Council	192
Teachers' Diploma Examination, Christmas, 1909: Supplementary List—Associateship	193
Correspondence:	
The Supply of Teachers (Marshall Jackman)	192
The Schools Mutual Aid Society (Hon. M. Cordelia Leigh)	193
Current Events	195
Fixtures — Honours — Endowments and Benefactions — Scholarships and Prizes — Appointments and Vacancies — Literary — General.	
The Secondary Schools Association: Annual Meeting	198
The Future of Endowed Schools in National Education: Paper by Prof. M. E. Sadler	198
Otto Salomon. Biographical Sketch by J. S. Thornton, B.A.	201
Reviews	202
Studies in the Teaching of History (Keatinge)—The Teaching of History (Oskar Jäger)—The Reformation and the Renaissance (Miss Tanner)—A Text-Book of Differential Calculus (Ganesh Prasad).	
General Notices	203
First Glances	206
Mathematics	208

The Educational Times.

Secondary Schools Association.

THE Secondary Schools Association, which held its annual meeting at the Caxton Hall on April 6, has just entered upon the second year of its career. It differs from many other educational associations in representing the governing bodies, and not the teachers, of our secondary schools. Indeed, it has been organized very much on the lines of the National Association for the Advancement of Technical and Secondary Education, which, under the chairmanship of the late Duke of Devonshire, rendered for many years valuable service by carefully watching over the interests of technical education, particularly as regards legislative action. The Secondary Schools Association was formed for the express purpose of safeguarding the interests of secondary schools, and it is mainly owing to the fact that secondary schools have recently come under the administration of the Board of Education that the Association came into existence. The second annual report, which has recently been published, shows that, during its short career, it has already justified its existence. The objects of the Association, as set forth in the report, are:—

(1) To promote interchange of experience among governors of secondary schools.

(2) To furnish information and give advice to members of governing bodies and others as to the Regulations and decisions of the Board of Education and of Local Education Authorities, and as to questions arising on the schemes of the Board for secondary schools and on other matters.

(3) To communicate with the Board of Education, Local Authorities, and other bodies in the interests of secondary education.

(4) To obtain such alterations in the Regulations of the Board and Local Authorities and in schemes for secondary schools as may be desirable.

(5) To initiate Parlimentary action if necessary.

With these aims we have every sympathy. At present there is a great need for the recognition of freedom of teaching and elasticity of curriculum in all our schools. Variety of type is an essential qualification of any educational system. There is room for many and different types—the carefully controlled municipal school, the semi-independent endowed school, the completely free private school; and we are glad to see that Sir Philip Magnus, who is Chairman of the Secondary Schools Association, speaking at the Annual Meeting, clearly expressed the Association's sympathy with the private schools, and the desire of the Association to safeguard their interests. Private schools, he remarked, should not be pushed out of the educational system, either by endowed or by municipal schools. There were many conditions under which such schools afforded the best possible education, and some of them provided that particular kind of education which did not come under any of the categories of the Board of Education and could not well be recognized by the Board.

These observations were made in bringing to a close an interesting discussion upon an address delivered by Prof. M. E. Sadler on "The Future of Endowed Schools in National Education," which we have the pleasure of reproducing in another column of our present issue. Prof. Sadler's address deserves to be carefully studied. It was a thoughtful effort in the author's best style. He gave three reasons for the retention of endowed schools in the State system of education. First, because variety of educational effort and tradition is in itself valuable, and because the existence of a considerable number of endowed schools, varying among themselves in history and in method, is the simplest (though not the only) way of securing such variety. Secondly, because at its best the older type of endowed school often, though not always, has regard to the needs of some social group (not by any means limited by mere income), and seeks to make the children of that group valuable citizens by inculcating the claims of the community upon the special service which the group can render in the economic and social conditions of the time. Thirdly, the Local Education Authority is not by itself able to stand out—in the sphere of higher secondary education, at any rate—against stringent central control of the course of study.

In alliance with the semi-independent endowed schools, the Local Authority can secure a due share of freedom and initiative. It is therefore to the welfare of education that the present somewhat precarious existence of many of the endowed secondary schools should be strengthened. The formation of the Secondary Schools Association has enabled these hitherto isolated units to organize for mutual information, and, when necessary, for combined and effective

protest. The Association therefore really fills a gap in the many (perhaps too many) educational societies, and we trust sincerely that before long it will number among its members the majority of the governing bodies of secondary schools in the country.

NOTES.

The Report of the Board of Education for 1908–9 (9½d., Wyman) reviews at great length the question of defective elementary-school buildings. In the majority of cases, it is admitted, the Local Education Authorities have actively exerted their influence to secure improvement, and, on the whole, it may be said, though with considerable qualifications, that they have done so with success and with reasonable rapidity. But "the Board feel that the time has now come when a resolute and systematic endeavour should be made to deal with the remaining cases of unsatisfactory school premises throughout the country. They are encouraged by the great progress that has been made in the last seven years to hope that such an attempt will be successful, and "they cannot permit themselves to be discouraged by the apathy, dilatoriness, or irresolution which have characterized certain areas." The medical inspection of children "has brought home to Local Education Authorities the reality and importance of defects which they were disposed to regard as insignificant, even if they did not deny their existence"; and, though there has recently been some reaction on the part of such Authorities in the direction of limitation of expenditure, yet there are signs that, in backward areas, "the supporters of Voluntary schools are now more willing than they were two or three years ago to make a special effort to bring the premises up to a fairly satisfactory standard."

It is, accordingly, the intention of the Board to follow up their own preliminary survey of the present condition of school buildings by inviting Local Education Authorities and the supporters of voluntary schools to make a similar comprehensive survey with a view to preparing a scheme for the systematic removal of defects within a reasonable period. The Board consider that no useful purpose would be served in concealing from the bodies and persons concerned the magnitude of the problem which confronts them in certain areas. It seems, indeed, that the first step towards reform is that the extent and the urgency of the problem should be clearly realized.

Moreover, as the Board says, "considerable advantage and convenience would result from a procedure by which all the schools in the area of an Authority would be subjected to review and taken in hand periodically with a view to bringing and keeping them up to date," as compared with the present sporadic procedure. Much will depend on the practical working out of the proposals and on the spirit exhibited on both sides.

In the same Report there is a substantial review of the State connexion with secondary education since the sixties of last century, and of some of the more important problems that now engage the attention of the Board. The first and most important of these problems is "the recognition of the essential unity of education": "the problem to be faced is how to unify education by liberalizing the whole of it." Then there is the antagonism between quantity and quality: the quality must be kept seriously in mind. Again, it has been necessary to give great attention to organization, but now "there is a risk of organization swallowing up everything else, of means being made into an end, and of education, for the sake of which the whole system exists, being subordinated to matters of less importance, such as inquiries into the particular conditions under which it is given or its value as a source of reports and statistics." The Board have the grace to recognize that here is a danger to be guarded against, not only by Local Authorities, but by "the Central Authority also." Another point is "that, unless great care and imaginative insight are present, there arises a tendency to an imposed uniformity, with a consequent discouragement of local and personal initiative and an absence of elasticity in the adaptation of schools to the special circumstances and to what may be called the specific genius of their own area." Further, there is the due balancing of the claims of inspection and of external examinations; and the Board have referred this question to their Consultative Committee for investigation and report. Special problems also arise in connexion with the education of girls—problems "very interesting and very intricate in their nature," and involving experiments that try even "the most elastic limits which are possible in general regulations." Finally, there is the general question of the aggressiveness of the State control; but the Board assure us that they "are keenly alive to this danger and constantly on the watch against it, and, so far as they are aware, the fullest freedom is allowed under their Regulations, consistently with real efficiency in the education that is provided." Well, it is satisfactory to find the Board so open-minded; and it is to be hoped that their practice will square with their professions. It is all to the good that they should discuss such points openly and frankly.

Writing in *Indian Education* on the prospects of further educational legislation, Prof. Sadler remarks that "educational opinion in England is full of cross currents." "There is a general feeling of unsettlement," he says, "without any clear agreement as to what is desirable in the way of drastic change. There are mutterings of discontent with the present work of the elementary schools." As to the future, he speculates tentatively:

It is not unlikely that financial pressure, combined with other causes, may bring about in England a temporary reaction not unlike that which in 1861 enabled Mr. Robert Lowe to reverse the educational policy instituted by Sir James Kay-Shuttleworth in 1846. The pressure of work upon the County Councils and the Municipal Authorities (a pressure which would be greatly increased if the amendments of the Poor Law followed the lines suggested by the minority of the Poor Law Commissioners) is already so great as to point towards some great redistribution of responsibilities between the central and the Local Authorities. Upon the present basis of assessment the local rates are unable, in a great number of areas, to bear any large increase in educational expenditure. On the other hand, there are few signs of any disposition on the part of public opinion to revert to *ad hoc* authorities for education or other public services. The movement of thought is in the opposite direction. What seems to me most likely to happen is the taking over by Government of the payment of the salaries of the teachers in all schools in which the secular education is controlled by Local Authorities.

"Ultimately, if this proved to be the line of change, the teachers would become a branch of the public service, but I doubt whether this would be, in the first instance, formally recognized." The teachers would almost certainly be freed

from any obligation to give religious instruction; and the modes and forms of religious instruction would probably be settled locally for each school. But nobody can foretell. Prof. Sadler's own forecast is "that financial pressure on local resources and the burden of administrative duties now falling upon members of the Local Authorities are likely to be determinative factors in giving a direction to future policy in this as well as in other departments of public elementary education." Meantime we should like to set Prof. Sadler to analyse the meaning of the term "control," and see whether there does not lurk in it an ambiguity whose removal might relieve the religious difficulty.

The Report of the Education Officer of the London County Council on Elementary Education for the year ended July 31, 1909, which has just been published (1s. 6d., King), breaks fresh ground and opens up aspects of the subject that merit wide consideration. Mr. Blair's four previous reports dealt mainly with the administrative side of the educational problem; now he addresses himself to the educational and human side, and reviews aims, progress, and results since 1870, especially in regard to the period in which the Council has been the Education Authority. He considers "the real child with his stock of ideas; the real teacher with his degree of culture and sympathy; and the mutual relations of these two persons—what habits are developed, what interests are aroused, what training in the widest sense of the term is the result." He confines his attention, however, mainly to the physical, ethical, and æsthetic elements of the educational ideal. The schemes of physical amelioration are only in process of development, but the summary of what is done by way of buildings and playgrounds, physical training, outdoor instruction, and remedial work (feeding, cleansing, and medical attention) indicates a vast and growing machinery and enormous recent advances. The ethical side involves an examination of the nature of the religious instruction given in the schools (purely as an educational problem) and of the method of moral instruction; but the results emerge most authentically and vividly in a remarkable series of "Memoranda on Educational Progress since 1870," furnished by a number of the oldest and most experienced of the Council's officers and teachers. The æsthetic element is nourished by improved surroundings, better lighted classrooms with more artistic adornments, a wider and more imaginative curriculum, drawing, singing, and so forth. Serious educationists will study this report; critics that enjoy the luxury of decrying the work of the elementary schools will greatly hamper the expression of their views by reading it. The conception and the execution of the report alike reflect the highest credit on the Education Officer.

The report of the Minister of Education of the Province of Ontario for last year is a record of most encouraging progress.

The zeal of all classes in the community in behalf of the education of their children has been praiseworthy. School Boards throughout the Province have exhibited readiness to incur expenditures for new and healthier buildings, for the improvement of existing structures, for the enlargement and embellishment of school grounds, and for other necessary purposes. It is manifest that the people of Ontario realize that, if this Province is to maintain its commanding position, their efforts in behalf of education must not relax. As we grow in material wealth we must also increase in educational efficiency. In no other way can we keep abreast of other communities on this Continent. The remedy for such defects as may develop in our social and economic system is not less education, but more education. The renown which such countries as Scotland and Germany have won is due more to the noble sacrifice they have made for the better education of their people than to any other single cause. It should also be recorded that, in the more progressive States of the American Union, the expenditure, already large, upon the schools increases annually, and affords us an example of what we must do. That Ontario's efforts are far from contemptible may be seen by an examination of the statistics available.

The statistics, which fill a thick and solid volume, bear out the Minister's statement and are highly creditable to the people of the Province.

But "to have efficient schools a supply of well trained teachers is indispensable." The professional training that has been going forward in the Universities and in the normal schools is having its effect; but the full results require more time for development. Meantime two well defined influences are at work draining the supply. There is the steady demand for teachers from the flourishing Provinces of Western Canada—Manitoba, Saskatchewan, Alberta, and British Columbia — and there is constant attraction of industrial and commercial opportunities. Both influences are bound to increase in strength. And what then?

The effect cannot be accurately foreseen, but it is clearly in the direction of withdrawing from the schools a body of persons whom Ontario can ill spare. I earnestly entreat the school trustees of the Province, who have shown so much enterprise and generosity in the discharge of their duties, to study carefully the conditions already confronting them. The advance in teachers' salaries thus far is reassuring. It will probably have to continue for some time if it is to prove effectual in staffing our schools with experienced and efficient teachers. A temporary shortage like the present may reasonably be met in certain cases by temporary measures. But, if a large number of our schools were to fall permanently into the hands of untrained persons, inadequately qualified for teaching, with no special aptitudes for the work, and determined to make it a mere stepping-stone to some other occupation, the standard of educational efficiency would suffer seriously.

"The Western Provinces have grasped the situation with intelligence. They demand the trained teacher and are organizing their systems of education upon modern lines," and paying larger salaries. The experience of Ontario is not without significance for this country.

MISS MARY E. WARNE.

Miss Grace Toplis, L.C.P., writes:—"The death of Miss Mary E. Warne, on March 29, will be mourned by a large circle, for hers was a well beloved as well as a unique personality. She was the contemporary and friend of most of the mid-Victorian women who did pioneer work, and was herself a notable worker in the educational and other forward movements of the sixties and seventies. Then she entered upon the work by which she will be remembered best. She joined the band of notable women whom Miss Frances Mary Buss gathered about her as colleagues; and the North London Collegiate School owed no little of its success and popularity to its genial, tactful secretary, to whom parents, pupils, colleagues, and strangers came all day long for the help and sympathy so willingly given in every perplexity and need. After her retirement she enjoyed many years of happy, useful life, winning love and esteem from an ever increasing circle of friends. These will be glad to know she died at the house of an old pupil and friend in Camden Road, instead of among strangers, and that her three score and ten years ended in a brief illness (as she would have wished), with no decay of mental or physical vigour to the last week of her life."

SUMMARY OF THE MONTH.

Mr. Walter Runciman, President of the Board of Education, has appointed a Departmental Committee to consider and report upon various questions in regard to the present condition and the future development of the valuable collections comprised in the Board's Science Museum at South Kensington and Geological Museum in Jermyn Street. In particular, the Committee are asked to advise him (*a*) as to the precise educational and other purposes which the collections can best serve in the national interests; (*b*) as to the lines on which the collections should be arranged and developed, and possibly modified, so as more effectively to fulfil these purposes; and (*c*) as to the special characteristics which should be possessed by the new buildings which, it is hoped, will shortly be erected on the South Kensington site to house these collections, so as to enable the latter to be classified and exhibited in the manner most fitted to accomplish the purposes they are intended to fulfil. The Committee is as follows:—Sir Hugh Bell, Bart., D.C.L. (Chairman); J. J. Dobbie, F.R.S., LL.D.; Sir Archibald Geikie, K.C.B., F.R.S.; R. T. Glazebrook, D.Sc., F.R.S.; Andrew Laing, M.I.C.E.; the Hon. Sir Schomberg McDonnell, K.C.B., C.V.O.; Sir William Ramsay, K.C.B., F.R.S., LL.D.; Prof. W. Ripper, D.Eng., M.I.C.E., Hon. M.I.Min.E.; Sir W. H. White, K.C.B., F.R.S., LL.D.; with Mr. F. G. Ogilvie, C.B., one of the Secretaries of the Board of Education, as Secretary.

Mr. Runciman has appointed a Departmental Committee to consider and report upon the functions and constitution of the Royal College of Art and its relations to the schools of art in London and throughout the country. The Committee is constituted as follows:—Mr. E. K. Chambers, one of the Principal Assistant Secretaries of the Board of Education (Chairman); Sir Kenneth S. Anderson, K.C.M.G.; Prof. Frederick Brown; William Burton, M.A., F.C.S.; Douglas Cockerell; Sir George J. Frampton, R.A.; Sir Charles Holroyd, Hon. Litt.D.; Halsey Ralph Ricardo, F.R.I.B.A.; and Frank Warner; with Mr. A. H. Sidgwick, a Junior Examiner of the Board of Education, as Secretary.

In the House of Commons, Mr. Runciman, in answer to Mr. Lehmann, stated that he had decided to continue in force in the present year the regulations providing that one-half of the vacancies of any existing training college should be open to candidates irrespective of their religious views. He was further considering the desirability of indicating in the ensuing issue of the regulations that the same degree of permanency, and no more, would attach to this provision as to other articles of the regulations.

Replying to Mr. Henry Hobhouse, who wrote on behalf of the County Councils Association, Mr. Runciman says: "I fully realize and regret the embarrassment caused to Local Education Authorities by the diminution of the residue fund of the local taxation (Customs and Excise) duties, but, as you know, the Board of Education do not dispense, nor have they any control over, the fund in question. I could not, therefore, myself undertake to receive the suggested deputation, but I am in communication with the Chancellor of the Exchequer on the subject. Will you allow me to point out a somewhat serious error in your letter? You say that a large portion of the funds available for higher education have had to be spent under the regulations of the Board of Education for training elementary teachers. This is a misapprehension. You are attributing to the Board's regulations what was laid down by Parliament in Section 22-0-1, Education Act, 1902."

A considerable part of the Board of Education's report for the year 1908–9 is devoted to the question of school buildings. It is stated that, in the nature of things, a standard cannot be fixed, but must be progressive. The Board's administration is often criticized on the ground that their requirements disregard economy and are capricious and wanting in finality. This criticism, says the report, rests on an entire misconception. The Board are deeply concerned to promote reasonable and far sighted economy and to assist Local Authorities in husbanding their resources. If they err, it is in leniency and undue consideration for local difficulties. It has become clear, continues the report, that the institution of Local Education Authorities has not in all respects, or everywhere, been an unmixed advantage. The Board feel that the time has now come when a resolute and systematic endeavour should be made to deal with the remaining cases of unsatisfactory school premises throughout the country.

With regard to State-aided secondary schools, the report adds that 775 out of 833 are now free from denominational religious restrictions and under effective popular control. At the beginning of 1904 there were 491 secondary schools in England, as compared with 833 at present. The pupils have increased from 85,358 to 135,776, and the amount of grant has more than doubled.

The report also deals at length with the question of the supply of elementary-school teachers. At present an idea is being disseminated that a large proportion of young persons newly trained and qualified for teaching posts will find themselves permanently unable to obtain employment. How fallacious this suggestion is is shown by the fact that, out of 4,384 men and women who satisfactorily completed the training college course in 1908, 4,069, or nearly 93 per cent., were known or believed to have secured employment within twelve months, the residue including a number who had elected to pursue their studies at a University instead of seeking immediate employment. The report adds that there is a danger of a serious shortage in a very few years' time in the supply of qualified adult teachers.

According to a return issued by the Scotch Education Department, the total number of day schools, elementary and higher grade on the annual grant list in Scotland at August 31, 1909, was 3,331, as compared with 3,312 the previous year. The number of scholars for whom accommodation was provided was 1,054,196, or an advance of 18,571. The average number of scholars on registers during the year was 824,669, as compared with 814,334 in 1908; and the average number in attendance 727,244, as compared with 712,076. There were 4,988 male and 11,909 female certificated teachers, including 1,725 male and 564 female graduates. The average salary of 2,386 principal masters, 1,508 of whom were provided with house or rent free, was £186. 7s. 11d. The average salary of 2,602 assistant masters, of whom 8 received house or rent free, was £132. 16s. 4d. The average salary of principal mistresses was £94. 16s. 4d., the average being taken on 1,475, of whom 526 had free house or rent. In the case of 10,434 assistant mistresses, of whom 56 were provided with house or rent, the average salary was £80. 5s. 6d. The rate of income per scholar in average attendance was £3. 10s. 5d., and the rate of expenditure £3. 10s. 6¼d. The latter rate has increased gradually from £2. 14s. 1d., the figure recorded for 1900. The annual grants claimed amounted to £930,759, of which £821,935 was claimed by public schools. In public and voluntary schools the income per scholar derived from annual grant was £1. 5s. 8d.; from general aid grant, 4s. 11¾d.; from fee grant, 11s. 10d.; in public schools—from rates, £1. 6s. 2¼d.; in voluntary schools—from voluntary contributions, 9s. 9¾d.; and from aid grant, 3s.

The Lords of the Committee of the Privy Council on Education in Scotland propose, in future, to use the following nomenclature:—

Primary School.—A school, or a department of a school, giving an education based entirely upon English to pupils who are, as a rule, below the age of fourteen. A Primary School may contain individual pupils or small sections of scholars who are being instructed on the lines of an Intermediate School.

Intermediate School.—A school providing at least a three years' course of instruction in languages, mathematics, science, and such other subjects as may from time to time be deemed suitable for pupils who, on entering, have reached the stage of attainment in elementary subjects which enables them to pass the qualifying examination.

Secondary School.—A school providing at least a five years' course of instruction as aforesaid beyond the qualifying examination stage.

In explanation of this nomenclature, the report points out than an Intermediate School corresponds generally to a higher-grade school, but there are some higher class schools which may fall into this category. A Secondary School corresponds generally to a higher class school, but there are some higher-grade schools which have developed, or in suitable circumstances may be expected to develop, a complete secondary-school course. An Intermediate School should retain its pupils until at least the age of fifteen or sixteen, and the normal attainments of the pupils at that age should be those indicated by the Intermediate Certificate.

Thus a pupil who is fitted for admission to a Secondary School in Scotland has a course of study mapped out for him until he reaches the

age of eighteen, when he will probably be fully equipped for entrance into a University.

A MEETING of members and officials of Local Education Committees was held (March 30) at Plymouth, Mr. Marshall Jackman in the chair. Sir Henry Hibbert, LL.D., Chairman of the Lancashire County Education Committee, read a paper entitled "Betwixt School and Citizenship: a Local Education Authority's Difficulties and Duties." He said that the time when children left school was the most critical of their lives, and was just the time when so many were left without sufficient guidance. It was obvious, therefore, that the duty of every Education Authority was to provide, in the fullest possible manner, for further discipline and training, both mental and physical, for all children. It was a duty that was receiving attention in many countries, all of which seemed to be moving towards three conclusions: (1) that increased effort should be made by the State to compel Local Authorities to organize, according to the needs of different localities and of different trades, courses of instruction useful to any child, and so planned as to train them for healthy living and for the duties of citizenship; (2) that there should be a further delimitation of the hours of juvenile labour; and (3) that all employers—Government as well as private—should be compelled by law to enable any person of less than seventeen or eighteen years of age employed by them to attend courses of instruction—general or technical—for a specified number of hours per week, at times during which the pupils would not be too tired to profit by the instruction.

THE principles involved in these conclusions (said Sir Henry) were not new, for they simply proposed a further application of principles already recognized in our social policy as regards national education, parental duty, and employment. This duty could be most efficiently carried out by the establishment of continuation schools, which should provide further instruction—mental and physical—for those who had left the elementary day schools and had entered upon the practical work of life. With regard to compulsory attendance at evening continuation schools, Sir Henry said although ultimately some form of compulsion would be desirable, yet the Consultative Committee of the Board of Education, who had considered this question, reported that it would be unwise to resort to compulsion at present. He also thought that juvenile labour bureaux were destined to play an important part in the future and were deserving of the most favourable consideration of higher Education Authorities. By their means boys and girls would be better guided in the choice of careers, but this guidance must be of a general character. The bureaux must not deal with a few selected employers and ignore others; they must have information with respect to as many openings for juveniles as possible. If properly organized and efficiently worked, they would prevent the haphazard methods which appertain at present with respect to boys and girls obtaining employment which very frequently involves waste of abilities, and even, sometimes, failure and unemployment. They would be able to direct the general flow of labour as between different trades and occupations, and as a consequence would be able to divert many children from blind-alley employments. They would be able to direct attention to the improvement for industrial training, and would do much to mitigate the evils of unemployment. An interesting discussion followed.

SIR JOHN COCKBURN presided at the annual meeting of the governors of the Horticultural College, Swanley (March 22). The annual report for 1909 stated that a deputation waited upon Mr. Runciman, who expressed himself as being in cordial agreement with their views. "Unfortunately," it continued, "the Education Department had not at present grasped the fact that initiative rests with their officers, and that, if a substantial advance is to be made in the direction of practical training, their inspectors must be instructed to further it by every means in their power and not to discourage local effort by a rigid insistence on elaborate apparatus." In moving the adoption of the report, the Chairman said that to be an old student of Swanley was a hallmark of efficiency. Many farmers beyond the seas raised their crops, sent them ten thousand miles to this country, and then made money out of it. It therefore seemed a marvel to him that England was not one great garden or orchard. Whatever difficulties the producer here might have to contend with—and legislation might do something for him—yet it was obvious that his advantages were not fully utilized. Mr. Charles Bathurst, M.P., in seconding the motion, said that the Board of Agriculture and the Board of Education had for the first time joined forces and determined upon a common policy. They would, therefore, have an interdepartmental committee composed of experts of both Boards, who would be responsible for seeing that the work was properly carried on. They would also have a Rural Education Conference, comprising representatives of all the leading agricultural and horticultural societies. He hoped also that some portion of the new development fund would be available for the work of the college. The report was unanimously adopted.

DR. ROBERT POHL, chief engineer to a great electrical firm in Bradford, lecturing before the West Yorkshire Association of Teachers in Technical Institutions on "The Movement towards a National System of Technical Education," described the Prussian system of educating the rank and file of its artisans. He stated that the kingdom of Prussia, in 1909, possessed 23 national engineering schools, 24 national building schools, 7 national art and artisan schools, and 45 State-supported municipal schools. "Most of these institutions," he said, "do no evening work, and the students pass through systematic courses extending over several years. During this time they are not in contact with practice. The courses are somewhat expensive, and, through the almost complete absence of a system of scholarships, they cater more for the middle classes than the working classes." He explained that this work was usually done in England by means of evening classes, which allowed the student to spend a portion of his time in contact with the actual practice of his calling. "This 'sandwich' or 'half-time' system," he said, "which we so justly condemn when it is applied to primary education, is, in my view, the ideal system for the training of the industrial rank and file. I am therefore of opinion that those who desire to see the present evening work abolished, and the day schools developed on the German lines, are very ill advised. Whatever we do, let us retain the great feature of the English principle—that is, the concurrent training in factory and school. Let us make the present evening courses much more efficient by establishing proper co-operation with the employers and by reducing the hours of labour, so that it becomes possible to gradually shift the centre of gravity from the evening to the day." Dr. Pohl considers that, up to the level of University education, Prussia has a great deal to learn from England, but that the situation is entirely reversed when we come to the higher branches of technical education, where we find in Prussia "thorough organization and efficiency," in England "chaos and waste of energy and money."

IN a report to the Governors of George Heriot's Trust on the Trades Schools that are being developed in London, with special reference to the printing trades in Edinburgh, Principal A. P. Laurie, Heriot-Watt College, Edinburgh, says the practical difficulties of running such a trade school are of three kinds. In the first place, there is the temptation on the part of the parents to send the boys out to work so that they can bring in money. This has been met by the London County Council giving scholarships of about £6 each, besides free education, to the boys in these trade schools. Then there is the difficulty of the length of apprenticeship which is customary in these trades. This difficulty has been met by the employers agreeing to count the time spent in the trade school towards the total period of apprenticeship. In the third place, there is the difficulty of dealing with the objections of the trade unions to trade schools, as tending to flood the trades with more apprentices than are really required. This difficulty has been met in the case of the printing school by the selected boys who have been chosen for scholarships being in each case apprenticed to some firm in London, which has agreed to take the boy when he finishes his school course. There should be very little difficulty in trying such an experiment for the printing trade in Edinburgh.

THE forty-third annual congress of the Irish National Teachers' Organization was opened at Dublin on March 29. Lady Aberdeen offered to the delegates the heartiest greetings of the Lord Lieutenant and of herself as President of the Women's National Health Association of Ireland. She thanked the teachers for the great kindness they had always shown in co-operating with the association, and hoped that their executive would appoint delegates to attend the annual meeting of the association next month. The President of the Congress, Mr. James McGowan, of Dromahair, in his presidential address, complained that, owing to the unpopular constitution of the National Board of

Education, Irish education was starved and ill, and a taxable entity was deprived of her legitimate share of the Imperial expenditure. Referring to the National University, he said that every precaution had been taken to exclude from its halls even the brightest talents if their possessor was a poor man. The doors of Trinity College, Dublin, and of the London University opened wide to invite indigent talent, but the portals of their democratic National University were bolted and barred against the extern student. Dr. Douglas Hyde, President of the Gaelic League, afterwards addressed the Congress, and explained that neither the new University nor the Senate was to blame for the fact that Irish was not made an essential subject in the University examinations. The Senate could not pronounce a decision until the Board of Studies of the Dublin, Cork, and Galway colleges had sent in a report. Now that the holidays had come, the Board of Studies were coming together, and would prepare their report for the Senate, which would meet in May and would settle this great and important question. He had no doubt that his fellow senators would act as men who desired to keep in touch with popular thought.

It is proposed to found "The Institute of Linguists," with the following objects: (1) to found an institute and to apply in due course for a Royal Charter for the purpose of furthering the study of modern languages, and to unite in a corporation persons, whether British or foreign, who, either as teachers, scholars, or men of letters, interpreters or foreign correspondents, desire to co-operate in this endeavour; (2) to devise and impose means for the testing of candidates for admission to membership of the institute by examination, or by other practical tests, and to grant certificates of qualification to the successful candidates; (3) to hold conferences and meetings for the reading of papers and discussion thereon, and to publish reports of such proceedings. The examinations of the institute will in no way seek to rival or supersede the examinations of the Universities or other learned bodies.

At the Oxford Senior and Junior Local Examinations held in March boys were examined at 31 centres, an increase of two on last year, and girls at 35 centres, three more than in 1909. The total number of candidates for ordinary certificates examined was 1,608—319 juniors (a decrease of 125) and 1,289 seniors (an increase of 351). Of these, 205 juniors and 958 seniors passed, making a total of 1,163. The total number of persons entered for the examinations was 1,818, of whom 21 failed to present themselves for the examination. Twenty-nine senior candidates are placed in the First Class in order of merit, the first position being gained by E. Enright, St. Francis Xavier's College, Liverpool. Thirteen junior candidates are placed in the First Class in order of merit, and there was a tie for first place between A. T. Law, Borough Boys' School, Croydon, and R. J. Harris, Secondary School, Stockton.

At a meeting of the China Emergency Appeal Committee it was reported that, during March, £2,081 had been received and promised towards the sum of £100,000 which the Committee is endeavouring to obtain for the development of medical, normal, and theological training colleges for Chinese students and for necessary literature in connexion with existing societies in China. Amongst the more recent contributions have been Edinburgh £770, and Glasgow £1,083. The following grants have been made by the China Emergency Appeal Committee: For the Union Medical College, Peking, £2,000; for the Union Medical College, Hankow, £1,000; for the Union Medical College, Mukden, £500; for the Union Normal Training College, Tsing-chowfu, Shantung, £1,500; for the Anglo-Chinese College, Tientsin, £1,000; for the Christian Literature Society for China, £1,700; for the China Medical Missionary Association, £300.

The Board of Education have received from the Foreign Office a copy of the following memorial embodying a proposal, which has been approved by the Emperor of China, for the admission of foreigners to the courses on Ancient Chinese Classics at the University of Peking:—

Foreign Universities, in addition to admitting students of their own nationality, receive equally persons of foreign nationality, whose educational training is of a similar standard and who may wish to undergo a course of study there. The principle involved is that in education there is no such thing as termination, and that by co-operation in teaching the greatest benefits are to be derived.

Since our Board has assumed the work of laying down courses of study in the University the question has been advanced to us repeatedly by foreigners as to whether they are eligible to undergo these courses. We would submit that at the present time the number of Chinese studying abroad is very considerable, and that China has now established a University where persons of foreign nationalities wish to study. From the point of view of showing our gratitude, to grant permission would strengthen friendly relations, while from the point of view of an interchange of learning it would promote education in its best sense. The memorialists have considered the question, and it seems to them that, although it will be better to defer the consideration of the question of foreigners being admitted to the ordinary courses at the University, owing to the fact that, now in their infancy, these courses cannot have reached as high a standard as in other countries, the course on the Ancient Chinese Classics, which is peculiar to China, should be open to persons of foreign nationality. Our Board, therefore, propose to prepare a short series of rules for this purpose, which, we trust, will be eminently satisfactory.

Bishop Barry, D.D., D.C.L., LL.D., Canon of Windsor, died at the age of eighty-four. Educated at King's College, London, and at Trinity College, Cambridge, he was Fourth Wrangler and Seventh Classic of his year; he won the second Smith's Prize, the first going to Isaac Todhunter; and he was elected a Fellow of Trinity. He was Sub-Warden of Trinity College, Glenalmond (1849–54); Head Master of Leeds Grammar School (1854–62); Principal of Cheltenham College (1862–68); Principal of King's College, London (1868–83); Bishop of Sydney and Metropolitan of New South Wales and Primate of Australia (1883–89); Bishop Suffragan of Southwark (1889–91); and Canon of Windsor (1891–1910). A great Churchman, he was probably a greater schoolmaster. He was a voluminous writer, chiefly on religious and educational subjects.

By the death of Mr. R. D. Archer-Hind, the University of Cambridge has lost one of her most brilliant scholars. Educated at Shrewsbury, under Dr. Kennedy, he proceeded to Trinity College, where he became in turn Scholar and Fellow. Even as an undergraduate he was an example of the finest type of Shrewsbury scholarship, and achieved high distinction both in his college and in the University. In 1872 he came out third in the Classical Tripos, though, had it not been for illness, he would probably have obtained the place of Senior Classic, for which he was marked out in the judgment of his contemporaries. A month or two later, however, he won the first Chancellor's medal. For twenty-eight years, from 1875 to 1903, he held the post of Classical Lecturer at Trinity, and, in spite of frail health and frequent suffering, proved himself a devoted and indefatigable teacher and worker. His compositions in Greek verse and prose are extremely varied and exceptionally able. His special bent, however, was for philosophy, and, as the outcome of long and serious Platonic study, he published an edition of the "Phaedo" in 1883, and of that difficult and much-neglected dialogue, the "Timaeus," in 1888. In each case he is concerned less with linguistic exegesis than with the philosophic significance of the dialogues and the place of each in the Platonic system. He took a keen interest in the cause of University education for women.

Mr. Thomas George Osborn, Head Master of Rydal Mount School, Colwyn Bay, died at the age of sixty-seven. Educated at Wesley College, Sheffield, and Trinity Hall, Cambridge, he graduated as Tenth Wrangler in 1866, and was soon afterwards appointed Head Master of the New Kingswood School, Bath. After his retirement in 1885, he took Rydal Mount School, Colwyn Bay, as a private venture. He was a justice of the peace for Denbighshire, was formerly Fellow of Trinity Hall, Cambridge, and a member of the governing body of the University of Wales.

Mr. Frederick William Watkin, Surmaster of St. Paul's School, West Kensington, died on April 6. Mr. Watkin was educated at Corpus Christi College, Oxford, and was Junior Mathematical Scholar in 1879.

Mr. James Colville, M.A., D.Sc., died in Glasgow (April 1). Dr. Colville was a recognized authority on Scottish history, and contributed the Scottish section to a recent reissue of "Green's Shorter History." He was also well versed in the history of old Glasgow, about which he wrote many interesting articles.

The late Sir William Bousfield will be greatly missed in edu-

cational circles. He did excellent service on the London School Board, and he acted for some time as Chairman of the Representative Managers' Association. He took a very active part in the formation and in the administration of the Girls' Public Day School Company, of which he was appointed Chairman in 1896.

The late Sir Walter Palmer bore a leading part in the foundation and development of University College, Reading. He was appointed Deputy-Chairman of the Council in 1896, and he was Chairman from 1897 to 1903; and he contributed most generously to the finances of the institution. Till his death he remained a member of the Council and of the Academic Board, and gave numerous proofs of his keen interest in the welfare of the College.

The Very Rev. Mgr. Corbishley, President of Ushaw College, Durham, died suddenly at Weymouth. Born in London in 1851, he was educated at the college, and took his B.A. degree at London University. He was ordained in 1878, and was for many years Professor of Science at Ushaw. In 1896 he was appointed domestic prelate to the Pope, and he was a member of the Catholic Education Council. Mgr. Corbishley was for some years Vice-President of Ushaw College, and after the death of Dr. Wilkinson, the Bishop of Hexham and Newcastle, in 1908, he succeeded to the Presidency.

UNIVERSITIES AND COLLEGES.

(*From our own Correspondent.*)

Cambridge.

There are rumours of change in the air. The Council has been sitting upon a little nest of suggestions; some have been addled, and the few chickens which have been hatched are to be examined by the Senate very shortly. To vary the metaphor, we are asked to pull up the academic tree to see if the roots are doing their duty. A long report has been put forward by the Council as to the desirability of remodelling our constitution, but the report is valuable only for what is left out. The short question is whether the University is, or is not, to be run in the interest of the permanent staff?

It may be well to consider in detail the proposed changes in the order taken in the Report.

1. With regard to the composition of the Senate. At present a capitation fee is levied upon all graduate members of the University; it is proposed to abolish this and to substitute an annual charge of six guineas upon all undergraduates in lieu of £2 per annum as at present. The fees for B.A. and M.A. degrees are to be reduced to £1. The meaning of this is that the very considerable number of men who come up with the full intention of doing nothing towards taking their degrees will pay eighteen guineas for their three years' amusement instead of six pounds—not altogether a bad scheme.

2. With regard to the reconstitution of the Electoral Roll. The idea is to eliminate from this body all those who do not possess some definite connexion with the teaching or administration of the Colleges or the University. A list is given of the offices which are to qualify for a place in the new House of Residents; one notable point is that examiners, if non-resident, will not be qualified.

3. As regards the distribution of powers between the Senate and the House of Residents. All changes made by statute are first to come before the Electoral Roll, or House of Residents, as the Council indifferently describe it, and will go before the Senate afterwards. It has often been remarked that University Liberals are often Conservatives in the larger world outside. There seems some justification for this when we see a bicameral organization deliberately suggested by what certainly is a very Liberal Council. With certain specific exceptions, the regulation of University affairs will be entrusted to the Electoral Roll. Regulations relating to studies to be pursued and examinations to be passed before admission to degrees are to be the special province of the new House of Residents. Verily the anti-Greek party are getting their way by a side wind; they have made our poll degree a laughing-stock and are now preparing the way for the abolition of literary culture altogether.

There are other proposals, such as those relating to the composition of the Council, which will probably be accepted without demur; but the strife will rage loud and fierce over the attempt to disfranchise the country parson, the London barrister, the doctors, and other professional men, who look at the University from the parent's point of view and rather dread any extension of the powers of an interested and permanent staff. By the time these notes see the light the discussion will be in full swing. That there will be some opposition is plain from the fact that out of fifteen signatories (excluding the Vice-Chancellor) no less than seven are against the suggested alterations in the fees and the proposed distribution of powers between the Resident House and the Senate.

There is much to be done this term, and one obvious alteration in our University arrangements would be to make the length of our terms independent of Easter. At Oxford the rule is of the simplest—the colleges require a residence of eight weeks, the University six. A regular amount of work can in this way be provided for years in advance, whereas here in Cambridge the working (?) part of the May term may be reduced to about five weeks or a little more if Easter is late. For example, this year, with an early Easter, the first day of full term was April 22, and the Specials begin on June 1. When we reflect that the average cost of a day in Cambridge to the ordinary undergraduate is over a pound there is something to be said for a change in the existing system.

The festivities for the May Week promise to be unusually attractive. The balls will begin during the Race Week, the Athenæum, the Hawks, and the old Etonians taking the Wednesday, Thursday, and Friday of the races. During the following week there will be the usual college functions.

The Boat Race was no surprise to us here. Change of regime is necessary if we are to have a chance next year.

London.

A meeting of members of the House of Commons that are graduates of the University of London was held in Committee Room 13 (April 14), Sir Philip Magnus in the chair. Statements were made by Sir Philip and Sir William Collins in regard to the accommodation and financial assistance provided by the Government for the University and also in regard to the Royal Commission on University Education in London. It was stated that the sitting of the Commission had been considered by the Treasury to preclude the grant of additional aid or the provision of further accommodation to meet the growing work of the University in connexion with its teaching functions; and it was agreed that such opportunities as Parliamentary procedure offered should be taken advantage of to bring before the House the necessities of the University and its claims upon the Government.

Dublin.

The Board of Trinity College, Dublin, has adopted the following resolutions:—

1. That no students or graduates of any other University (excluding Oxford and Cambridge) should be allowed to take the B.A. unless they have kept at least two academic years at Trinity College, Dublin.

2. That no student should be allowed to take any of the degrees in Medicine, Surgery, and Midwifery unless he has attended at least three years of the prescribed curriculum in the School of Physic, Trinity College.

3. That any student who is a Bachelor or Master of Arts of a University recognized by the Board and Council should be allowed credit for the two Freshmen years and the Final Freshman Examination; and that such student should be allowed to have his name placed on the College books as a rising Junior Sophister upon payment of the final fee of the Senior Freshman year. If it should appear that any such student has not studied, as part of the approved courses in the University at which he has graduated, any of the compulsory subjects for the Final Freshman Examination, then the senior lecturer should have power to require such student to pass a qualifying examination in such subjects.

4. That the following Universities should be recognized under the foregoing rule—namely, the Universities of Aberdeen, Birmingham, Edinburgh, Glasgow, Leeds, Liverpool, London, Manchester, St. Andrews, Sheffield, Wales.

Belfast.

By 238 votes to 56, the first meeting of Convocation of Queen's University decided to protest against the establishment of the lectureship in scholastic philosophy which, it was held, was a grave violation of the principles of non-sectarianism upon which the University was founded.

A resolution was passed urging upon the Senate the immediate and pressing needs for greater development of post-graduate teaching and research, and asking for endowment on a more liberal basis.

Grenoble.

The number of foreign students at the University of Grenoble, attending during the whole college year or at the Cours de Vacances, progressed (says the *Scotsman*) from 1898–9 onwards in the following manner:—154, 290, 368, 480, 575, 603, 636, 729, 808, 970; and in 1908–9 the figures had advanced to 1,104. This progressive increase led to extensions from time to time of the University buildings. An amphitheatre was added, with four hundred places; latterly a new hall has been built to accommodate eight hundred, and in gratitude for the work of the president of the Committee the Senate of the University has called it the "Amphithéâtre Marcel Reymond." As one result of this development of the Faculté des Lettres the University founded "L'Institut de Phonétic"—quite a new creation in Europe, which united two orders of studies until then separated—the practical teaching of pronunciation and the scientific study of the spoken word. This organization had a great success and has been followed since in other educational centres of the country. Sixteen hours a week are specially set apart at the University for foreign students; and, as the ordinary courses of the Faculty are also open to them, each week such students could, if they chose, have thirty hours of lectures and practical exercises, on the language, literature, history, geography, and institutions of France, and all at a moderate fee. To assist the Grenoble professors in their work several distinguished professors of the Paris Sorbonne have from time to time given special courses at the University. In twelve years 6,764 foreign students have been attracted to Grenoble, and have carried the fame of the little University among the mountains to every part of the world. Among the students last year at Grenoble during the college year were 222 Germans, 92 Russians, 61 Bulgarians, 21 Italians, 21 Americans, 18 Austrians, and 10 from Great Britain; while at the Cours de Vacances were 226 Germans, 101 Italians, 60 from Great Britain, 75 from Russia, 53 from Austria, 47 from the United States, and 29 from Bulgaria.

Cape.

In his annual address at the Cape University on Degree Day, the Chief Justice (Sir J. Henry de Villiers) said that there was a natural desire in the Transvaal as well as in the Orange River Colony to provide higher education for the youth within their respective borders, and that desire would deserve every encouragement from the Union Government and Parliament. If he read the signs aright, there was every disposition on the part of the University Colleges of the Transvaal and Orange Free State to co-operate with the Colleges of the Cape Colony, and, if their autonomous character could be maintained, to become constituent Colleges of a South African University created by an expansion of the existing University. Such a University would supply a tie for binding together all the Colleges of South Africa, it would maintain the standard of South African degrees unimpaired, and would see to it that instruction in every branch of learning for which there was a demand was supplied. South Africa afforded such a wide field for scientific research that they might fairly entertain the hope that the professors of science in their University Colleges would contribute their fair share towards the solution of the scientific questions of the day. In heartily co-operating with its constituent Colleges, and extending its own sphere of usefulness, the University would earn strong further claims upon the munificence not only of the State, but of individuals who had been enriched under the protection of the State. The University had always paid its way. It was not only free from debt, but it had the substantial balance of £59,000 in hand, consisting of different funds and investments, which would be handed over for administration to the University of South Africa.

Joint Matriculation Board.

The Board of Education have notified the Joint Matriculation Board that they are prepared to accept the possession of a Senior School Certificate as qualifying for admission of students to a training college as two-year students or as three-year students, provided that the choice of subjects in which the student is successful is such as the Board of Education approve.

THE EDUCATIONAL LADDER.

Aberdeen University.—Simpson Greek Prize of £65: J. W. Pirie, Rousay, Orkney. Simpson Mathematical Prize of £65: A. G. Willox, Tyrie. Boxill Mathematical Prize of £28: W. Peters, Berwick-on-Tweed. Dr. Black Prize in Latin: A. Macmillan, Drumnadrochit. Neil Arnott Prize in Experimental Physics: W. M. Birse, Aberdeen and W. R. Watt, Knockando, equal. Greig Prize in Natural Philosophy: W. Peters. Seafield Gold Medal in Latin: A. Macmillan. Seafield Gold Medal in English: R. S. Knox, Aberdeen. Minto Memorial Prize in English: R. S. Knox. Rennet Gold Medal in Mathematics: A. G. Willox. Kay Prize in Education: J. B. Calder, Stornoway.

Cambridge University.—

Jesus.—Fellowship: Mr. S. C. Cockerell, Director of the Fitzwilliam Museum.

Selwyn.—Scholarships: £40, Mathematics, G. W. Dunckley, St. Albans School; £40, Classics, R. N. Chubb, St. Albans School; £40, History, H. D. Gawne, Richmond School, Yorkshire; £30, Natural Sciences, J. F. Webster, Hymers College, Hull. Ratcliffe Exhibition, £27, Classics: A. S. Bourne, St. John's School, Leatherhead. Exhibitions of £20: Mathematics, J. B. Harris, Devon County School, and H. B. Howard, Queen Mary's School, Walsall; Classics, C. D. Gurnhill, Denstone, College, and C. H. Joscelyne, Rossall School; Natural Sciences, H. A. Hendrie, St. Olave's Grammar School.

Cambridge: Girton College.—Scholarships and Exhibitions, tenable for three years; Clothworkers' Scholarship, £60, A. L. Lawrence, St. Leonard's School, St. Andrews (History); College Scholarship, £50, E. Baker-Gabb, St. Felix School, Southwold (English and German); Goldsmid Scholarship, £45, M. H. Whiting, Notting Hill High School (Mathematics); Bodichon Scholarship, about £44, D. O. Ivens, King Edward VI's School, Birmingham (Classics); College Scholarship, £40, G. M. Jackson, North London Collegiate School (Classics); Higgens Scholarship, £40, D. R. Hoffert, Manchester High School (Natural Sciences); Pfeiffer Scholarship, £30, N. S. de Jarhzebska, Croydon High School (French and German); College Scholarship, £30, M. A. L. Burge (French and English); College Scholarships, £25 each, M. Gallemore, Leamington High School (Mathematics), and D. B. Hildersley, North London Collegiate School (Mathematics); College Exhibitions, £15 each, A. M. Ashley, Edgbaston High School and Birmingham University (Classics), and B. M. Fower, Oxford High School (History).

Edinburgh University.—Pitt Club Classical Scholarship (about £70 a year, for 4 years): William M. Smail, M.A. Rhind Classical Scholarship (about £85 a year, for 2 years): Matthew G. Fisher, M.A., and Christina Keith, M.A., equal. Lanfine Bursary in Modern Languages (about £35 a year, for 2 years) to Mary Burns. Heriot Travelling Scholarships, each of £100 (awarded by Heriot Trust): Ruth E. Clark, M.A. (French); Sophia I. Younie, M.A. (German). Two Hope Prize Scholarships in Chemistry (£30 each, for 1 year): Isaac Hoppenstein and C. W. B. Normand. Vans Dunlop Scholarship in Natural Science (£100 a year, for 3 years): William Brown, M.A., B.Sc. Vans Dunlop Scholarship in Engineering (£100 a year, for 3 years): George MacDonald, B.Sc. Vans Dunlop Scholarship in Agriculture and Rural Economy (£100 a year, for 3 years): Wilfrid B. Mercer, B.Sc. Steven Scholarship in Agriculture (about £70, for 1 year): Andrew Cunningham. Jeffrey Scholarship in Biblical Criticism (about £75, for 1 year): J. M. Finlayson, M.A., B.D. Jeffrey Scholarship in Ecclesiastical History (about £75, for 1 year): John Sellar, M.A.

Eton.—Newcastle Scholarship: (1) E. L. Finlay, K.S.: (2) H. A. Robertson, K.S.; (3) M. J. St. Aubyn; (4) Armstrong, ma., K.S., J. H. L. Lambart, K.S., and E. J. Powell, K.S., equal; (7) Gelderd-Somervell, K.S.; and (8) W. G. K. Boswell, K.S.

Felsted.—Scholarships: £60, R. B. Beevor (in the school); £50, J. C. Donaldson (in the school), H. W. Duffield (in the school), L. A. Storrs Fox (Mr. Pearce, Ripley Court), E. I. Wynne Jones (Ruthin Grammar School), E. W. Lanfear (Mr. Townley, Sussex House, Seaford); £30, D. G. Brewster (Mr. Bird, Wykeham House, Worthing); £20, E. G. Evans (Mr. Russell, Fermoy), G. E. Ingle (Glebe House, Hunstanton), G. L. Mallam (Oxford), A. G. B. Watts (Ovingdon Hall, Brighton).

Harrow.—Entrance Scholarships:—For Classics: N. S. Gulbenkian (Mr. G. B. Innes Hopkins, Orley Farm, Harrow), E. H. Pember (Mr. L. T. Thring, The Wick, Hove), F. H. Hodgson (Mr. J. R. Morgan, Connaught House, Portmore, Weymouth); honourably mentioned, R. Y. Phillips (Mr. H. G. Coghlan, Seafield, Bexhill-on-Sea. For Classics and History: B. B. Salmon (Rev. L. R. Browne, St. Christopher's, Eastbourne). For Mathematics: G. H. M. Vereker (Rev. F. de W. Lushington, Elstree, Herts). C. M. Hattersley (Rev. J. W. Chippett, Riber Castle, Matlock), J. T. Matthey (Mr. J. W. Hawtrey, Rimpton, S. Peter's, Thanet). For Modern Subjects: C. G. D. Thrupp (Rev. F. de W. Lushington, Elstree, Herts).

London University.—Cobden Prize (£10 and Silver Medal): T. Henderson, B.Sc.Econ., and Mr. H. G. Richardson, B.Sc.Econ., London School of Economics, equal.

Oakham.—Scholarships: £40, B. F. W. Moggridge, Bewdley Grammar School; £30, G. G. Sills, Oakham School, and G. E. Curtis, Mr. Chapman's, Fritham House, Lyndhurst.

Oxford University. — Lothian Prize (Historical Essay): Murray L. R. Beaven, B.A., late Scholar of Exeter.—Radcliffe Travelling Fellowship: E. L. Kennaway, B.M., M.A., Hulme Research Student of Brasenose. — Charles Oldham Prize (£55): W. R. Halliday, late Scholar of New College.

Magdalen.—Classical Demyships: Rupert C. G. Somervell (Eton), K. B. Morrison (Harrow), G. C. Turner (Marlborough), and Albyn K. Trower (Clifton).—Classical Exhibitions: W. L. W. Campbell (Commoner of the College), Roy E. Machon (Bristol Grammar School), and H. R. Russell (Clifton).

Trinity.—Lingen Scholar: R. McKenzie, Foundation Scholar of the College.

Worcester. — Barnes Scholarship for Classics and Divinity: F. C. Howard, St. Paul's School.—Clarke Scholarship: no award.—Exhibitions: F. M. Plant, Manchester Grammar School (Classics); G. J. I. Nicholls, Blundell's School (History); G. T. Pearson, Repton (French); D. C. McCready, St. Bees School (Classics); and A. B. Harrower, King Edward's School, Birmingham (Classics).

Oxford: Lady Margaret Hall.—Scholarships: £50 a year (English), G. M. Madge, Winchester High School; £40 a year (History), H. D. B. Littlewood, Braybrooke College, Hastings, and Winchester High School; £35 a year (English), A. E. Hake, Miss Rudd's School, Bournemouth.

Oxford: St. Hugh's Hall.—Scholarships: £30 a year (French and Latin), D. Ibbetson, Redland High School; £25 a year (English), M. Shaw, Uplands School, St. Leonards-on-Sea.

Rossall.—Senior Scholarships: R. V. G. Tasker (Temple Grove, Eastbourne), J. W. Blake, E. K. Allin, H. F. G. Bromley, A. L. Trundle, V. P. Davies, G. A. A. Bradnack (all of Rossall School), A. G. Blake (Mathematics) and N. Kemp (Mathematics) (both of Rossall School). Junior Scholarships: C. O. L. Leigh-Clare (Ripley Court, Surrey), A. G. Lole (Stoneygate School, Leicester), T. K. Barlow (King's College Choir School, Cambridge), F. B. Cameron (Lambrook, Bracknell), G. W. Thomas (Oxford Preparatory School), E. F. G. Fripp (Rossall Preparatory School), G. A. La Mothe (Rossall), J. G. Olivier (St. Anselm's, Croydon), E. A. Ingmire Castle School, Tonbridge). Mathematical Scholarship: A. B. Douglas (Grammar School, Preston).

St. Andrews University.—Berry Scholarships: Classics, £80, Mary C. Gardiner, M.A.; Chemistry, £80, Charles S. Garrett, B.Sc.

St. Bees.—Scholarships and Exhibitions (in order of merit): J. B. R. Challen (St. Bees and Mr. E. G. A. Beckwith, Maidenhead), D. Adamson (Mr. A. G. Grenfell, Mostyn House School, Chester), J. F. Woodthorpe (Mr. W. R. Lewis, St. John's House, Hampstead), H. L. Lewis (Mr. W. H. B. Hayman, The Abbey, Beckenham), P. H. Stott (Mr. P. A. Thomas, Sedbergh Preparatory School), A. V. Hurley (Basingstoke Grammar School), H. W. Sampson (Mr. B. O. Corbet, Rycote, Derby), M. W. Guinness (St. Bees and Mr. A. S. Carey, Morne Grange, Kilkeel), R. E. Greenhouse (Mostyn House, Parkgate, Chester), R. M. Calvert (Carlisle Grammar School), H. B. Beaumont (Mr. P. A. Thomas, Sedbergh Preparatory School), G. F. Wear (Mr. F. Burke Peel, Holmwood Preparatory School, Sedbergh), A. D. Foulkes-Roberts (Mr. R. M. Hugh-Jones, Colet House, Rhyl), L. K. Phillips (Mr T. A. Wise, Oakfield, Rugby), and J. C. Blacklock (Abbey Town School).

CONFÉRENCES FRANÇAISES.

Société Nationale des Professeurs de Français.

ÉMILE ZOLA À LONDRES.

Par M. George Petilleau.

Emile Zola est venu deux fois à Londres. Une première fois en septembre 1893, à l'occasion du Congrès des Journalistes; ce fut un voyage triomphal. Une deuxième fois en 1898, au moment de l'affaire Dreyfus; c'était une fuite, mais une fuite glorieuse. Le conférencier a vu Zola de près dans ces deux circonstances. Il lit un extrait d'une lettre reçue le matin même de la noble femme qui, durant toute l'existence de Zola, fut son bon génie; elle dit à propos du second voyage: "Nous avons été tous les deux très reconnaissants aux Londoniens de leur discrétion."

Quelques mots de biographie. Emile Zola était né à Paris, en 1840. Son père était Italien, marié à une Française, Madame Françoise Aubert. Il fit ses études au lycée. C'était un caractère fortement trempé. Un jour, le rencontrant chez Hachette, il me dit: "Je ne fume plus." C'était pour ne pas écorner ses appointements. Or il est peu de personnes de son âge qui aient eu le courage de renoncer à la déesse Nicotine, plus impérieuse encore que le dieu Alcool. L'amitié de Zola était aussi sûre que sa volonté inébranlable; il conserva tous ses amis, sauf F. Coppée, qui s'était séparé de lui pour cause de religion.

Donner un compte-rendu de son œuvre outrepasserait le sujet. Qu'il suffise de dire que dans tous ses ouvrages Zola a parlé de l'héridité. Le plus bel exemple est sa série des "Rougon-Macquart," dont les vingt volumes se suivent tellement qu'on ne peut en lire un sans trouver une relation avec le précédent.

On a accusé Zola d'immoralité. On a eu tort. Il est évident qu'il dépeint la vie. Et quel roman plus moral peut-on citer que "l'Assommoir," dont le drame a été joué plus de mille fois en Angleterre sous le titre de "Drink"? Des brutalités de langage se sont, il est vrai, glissées dans ses livres; mais n'est-ce pas un moyen de mieux stigmatiser le vice?

Au Congrès des Journalistes de 1893, Zola donna un discours intitulé "L'anonymat dans la Presse." Il fit ressortir la différence des usages dans les deux pays. En Angleterre, l'article non signé est courant; en France, il n'aurait aucune valeur. Peut-on concevoir un article de critique dramatique qui ne serait pas signé Ad. Brisson aujourd'hui, ou F. Sarcey du temps de Zola? Constatons qu'un résultat fut obtenu. Lawson commença à faire signer les articles de critique dramatique dans le *Daily Telegraph.*

Citons, pour mémoire, le banquet à Lincoln's Inn Fields, le bal à Covent Garden, la réception à Hatfield House. Zola se trouvait las de toutes ces réceptions et de ces agapes; il visita néanmoins l'Hôpital Français et la Société Nationale des Professeurs de Français. Aux régates de Taplow, il entendit la Marseillaise chantée par un chœur de jeunes filles anglaises. La phonétique en laissait beaucoup à désirer; il est vrai qu'on ne connaissait pas encore les bienfaits de la méthode directe. Enfin, le conférencier eut l'honneur de distribuer le montant d'un chèque remis à lui par Zola. Le départ fut triomphal comme l'arrivée.

En 1898, second voyage, exil, presque. Il devait ne durer que quelques semaines, il dura treize mois. Seuls MM. Petilleau et Vizetelly connaissaient la présence de Zola à Londres, au début. Une espèce de conseil de famille eut lieu chez Me Labori. Zola venait d'être condamné à un an de prison pour avoir démontré l'imbécillité des "experts"! On sait aujourd'hui que Esterhazy était le vrai coupable. Il est actuellement en Angleterre; il est peut-être ici dans cette salle; eh bien, qu'il se lève et qu'il dise qu'il n'a pas écrit le "bordereau."

Zola dut donc se sauver de Paris, car il fallait que la question restât ouverte. Ici le conférencier relate les premières difficultés de l'arrivée, la course en fiacre, et les arrhes qu'il fallut déposer à l'hôtel. Sans vouloir parler politique, il est néanmoins nécessaire de repasser les étapes de ce voyage, la fameuse lettre au président Faure, la démission de Casimir-Périer, qui savait tout et qui ne voulait pas être complice de toutes les intrigues de l'Etat-Major, le suicide du colonel Henry.

Zola avait été condamné, en outre, à 30,000 francs de dommages-intérêts; ses meubles furent saisis, et cela donna lieu à une vente à la criée assez curieuse. Le premier objet fut mis sous le marteau à 30 francs. "30,000," répond une voix, celle de l'éditeur Charpentier, et le combat cessa faute de combattants. La vérité, selon le mot de Zola, était en marche et rien ne put l'arrêter.

Zola s'installa d'abord au Crystal Palace Hôtel. Il avait horreur des "serveurs" et de la cuisine anglaise; on lui envoya de France une cuisinière sourde-muette, bonne combinaison, mais qui désespéra les journalistes. Le séjour fut cruel pour Zola; sa santé était ébranlée; enfin, on lui prêta des livres, et les éditeurs Chatto et Windus lui tinrent souvent compagnie.

Aujourd'hui Zola est au Panthéon, ce monument qui porte ces mots inscrits au fronton: "Aux grands hommes la Patrie reconnaissante." Cela n'alla pas sans difficultés, et, pour vous en donner une idée, je vous rappelle que le jour du transfert on tira sur Dreyfus, qui était là pour rendre hommage à son défenseur. Cependant c'était moins la cause du capitaine que l'illustre romancier avait entreprise que la défense de la vérité. "Vérité" et "Justice," encore deux titres de ses ouvrages qui forment son Evangile, et dont il ne se départit jamais.

Mais passons, et "let bygones be bygones" comme on dit en anglais. Zola n'eut qu'un chagrin: n'être pas élu de l'Académie Française. On ne l'avait pas trouvé d'assez bonne compagnie. Qu'importe? Il vivra plus longtemps que beaucoup de ceux qui ont été sacrés immortels. Sa maxime était: "Oser être," ce qui fait arriver à tout.

AN EDUCATIONAL EXPERIMENT.

The study of childhood to-day is fashionable. It is a modern cult. A society already exists for its further development. But it is not every one who is able to apply in a practical manner what he or she believes. By the advocates of improved methods of teaching, knowledge is not so much desired as the education of all the faculties that will enable a child to appropriate every-

thing that is good and useful. A story is told of a boy, wearied with school tasks, who sighed: "Oh! if all the world would but agree to *know* a little less!" Well, it would appear that the Countess de Noailles, of Holywell Lodge, Eastbourne, who recently died, had decided opinions of her own in this direction. Such opinions may be considered curious by most people, but to the trne educationist they are based on psychological principles which cannot be disputed. The greater portion of this lady's residuary estate she has left to found an orphanage for daughters of the clergy of the Church of England. In their teaching, books, she stipulates, shall be considered of secondary importance, and competitive examinations shall not be allowed. Evidently the Countess was a disciple of Ruskin, who ever maintained that "competition is the law of death." That a child must grow physically is also recognized in the provision that no pupils under ten years of age are to be taught arithmetic, except the multiplication table. Was it not Cobbett who said of his own son, when he had arrived at the age of eleven, that it was time he should commence arithmetic? But Cobbett in one respect went further than our testator, for he declared the multiplication table was wholly unnecessary.

Other stipulations are also to be enforced in this modern institution. For example: no girl is to work more than four and a half hours a day, though an additional hour may be given to plain needlework if one girl be allowed to read audibly to the rest; all lessons are to be learned in the morning; and (the most delightful rnle to the modern-day schoolgirl) no pupil shall be punished for not knowing her lessons. It will be interesting to learn what effect these rules, based on the love for freedom and naturalness, will have on the tone and teaching of the school. The Countess de Noailles has shown by her will that she has been desirous to get away from the crystallized routine of the ordinary pedagogue, who is so frequently bound in his work with the fetters of past generations. The experiment is an innovation, and in some respects will be welcomed by the true educationist.

J. C. Wright.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, on April 23. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Mr. E. A. Butler, Dr. Armitage Smith, Mr. Barlet, Bev. J. B. Blomfield, Mr. J. L. Butler, Miss Crookshank, Prof. Dixon, Mr. Eagles, Mr. Eve, Mr. Hawe, Mr. Hay, Mr. Ladell, Rev. R. Lee, Dr. Moody, Mr. Pinches, Rev. Dr. Scott, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

Diplomas were granted to the following, who had satisfied the prescribed conditions: *Licentiateship*, H. M. C. Harris; *Associateship*, J. M. Le Pévédic, Miss M. T. O'Dowd.

Two representatives were appointed to attend a Conference on the "Training of Teachers of Domestic Science," to be held in London on May 28.

In accordance with recommendations of the Finance Committee, it was resolved (1) that a grant of £10 from the Benevolent Fund should be made to the widow of a former member of the College; (2) that arrangements should be made for holding a Winter Meeting for Teachers at the College in January, 1911, and that the programme should include a Conversazione.

The following were admitted to the privileges of membership, under Section II, cl. 5 of the By-Laws:—

Mr. L. R. Davison, B.Sc. (Wales), L.C.P., 88 The Mall, Swindon.
Mr. A. L. Green, A.C.P., 54 Robinson Street, Sunderland.
Mr. W. G. Martin, B.Sc. (Wales), F.C.S., L.C.P., Royal School, Armagh.

The following books had been presented to the Library since the last meeting of the Council:—

By the Board of Education.—Report for the Year 1908–9.
By the Smithsonian Institution.—Annual Report of the Smithsonian Institution, 1908; Report of the U.S. National Museum, 1909.
By Edward Arnold.—Builders of History, Books I–VI.
By A. & C. Black.—Black's Diagrammatic Atlas of the British Empire; Black's Supplementary Readers (Old-Time Tales and Tales from Dickens); Andrew's Lectures et Exercices (Cours Moyen); Lyde's Man in Many Lands.
By the Oxford University Press.—Oxford Plain Texts (Carlyle's Essay on Burns, Macaulay's Essay on Bacon, and Lays of Ancient Rome); Leveson's Sandeau's Un Héritage.
R.I.B.A. Calendar, 1909–10, and Charter, Supplemental Charter, and Revised By-Laws.

CORRESPONDENCE.

[*We do not hold ourselves responsible for the opinions expressed by our correspondents.*—Ed., *E.T.*]

THE SUPPLY OF TEACHERS.

To the Editor of "The Educational Times."

Sir,—The Board of Education, in their Annual Report just issued, when dealing with the question of the supply of teachers, say that "at the present moment an idea is being disseminated that a large proportion of young persons newly trained and qualified for teaching posts will find themselves permanently unable to obtain employment." The Board try to show that this statement is fallacious, and that in a few years' time there will be a shortage of qualified adult teachers for elementary schools. The reference to the dissemination of the statement with regard to the glut of teachers is evidently aimed at the action taken by the National Union of Teachers at the Plymouth Conference, and also to a circular which the Executive of the Union sent out to parents, warning them respecting the attitude of the Board of Education with regard to the supply of qualified teachers in elementary schools. Let me say at once that we have never said the young persons newly trained would find themselves *permanently* unable to obtain employment. What we have said, and what we are prepared to prove, is that under the present conditions of staffing in our schools many newly qnalified teachers, trained at considerable expense to the public, in addition to private expenditure, find themselves unable to obtain employment for many months, or even a year or more, after leaving College, while tens of thousands of classes in the schools are being taught by unqualified teachers. It is not sufficient for the Board of Education, in order to prove that there is no dearth at the present time, to give figures for 1908; they are in a better position than we are to find out the latest figures, as all teachers, directly they commence work, have to notify the Board of Education to that effect, for the purpose of recording service. Let me give the figures for the present year. In July, 1909, 4,836 newly qualified trained teachers left the training colleges to seek employment in the elementary schools of this country. On October 1, only 2,860 had secured permanent employment, 192 had obtained temporary employment as certificated teachers, 144 had accepted posts as uncertificated teachers (although they were trained and certificated), and no less than 1,528 were without employment at all. In London the glut of teachers is even more serious than for the country as a whole. Out of 494 students who left the L.C.C. training colleges in July, 1908, nearly 20 per cent. had failed to obtain places by the end of the year; and of 525 students who left the L.C.C. training colleges in July, 1909, 352 were reported as being unemployed in October of last year. As the staffing arrangements for London are made at the beginning of the educational year, which commences in August, there is very little prospect of many of those teachers securing employment in London during the present year. These figures, at any rate, I think, will convince parents that at the present time there is a large amount of unemployment in the teaching profession.

I quite agree that, unless steps are taken to deal with this matter of supply, there will be a very serious shortage of properly qualified teachers in a few years' time. Parents are not likely to make years of sacrifice in order to prepare their children for the teaching profession, only to find that at the end of their college career, just as they are entering on manhood and womanhood, no suitable places are open for them. Moreover, the Board of Education, by a recent Act of Parliament, have secured powers to obtain reimbursements of the amounts spent by the State on the training of these young people if they do not take up service in a recognized efficient school. These young people are placed on the horns of a dilemma. There is no place for them in the schools for which they have been trained, and they must not seek employment outside or the Board of Education will insist on the repayment of the cost of their training. Yet there is absolutely no need for one of these young people to be out of a place if the Board of Education insisted on the employment of properly qualified teachers. In the schools of England and Wales there are more than eighteen thousand supplementary teachers employed—that is, teachers who have absolutely no qualification, either academic or professional, for the work in which they are engaged. The Board are allowing new teachers of this class to be appointed, while fully qualified trained teachers are idle. Another very strong reason why there is

likely to be a dearth in the near future is, that many Education Authorities, oppressed with the heavy rate burden, endeavour to secure relief by breaking contract with the teachers with regard to their scales of salaries. It has only been by continued efforts that the Union has been able to prevent this disastrous policy from being carried out and a grave conflict averted. At the present moment the Union is dealing with two such cases. If the Board of Education secured greater financial aid from the Treasury, they would be able to relieve the strain on the localities and at the same time insist, as they do in secondary schools, that the children should be taught by fully qualified teachers.

I am, Sir, &c., MARSHALL JACKMAN,
President, National Union of Teachers.

Bolton House, Russell Square, London, W.C.
April 18, 1910.

SCHOOLS MUTUAL AID SOCIETY.

To the Editor of "The Educational Times."

SIR,—Will you allow me a little space for a report of the progress of the Schools Mutual Aid Society, which you kindly noticed in your columns at its beginning, about four years ago?

The work is gradually extending itself, and recently the Children's Flower Fund, which for some time past had been working upon somewhat the same lines as the S.M.A., has amalgamated with us, so that the Society is now entitled "The Schools Mutual Aid and Flower Fund Society," under the Presidentship of Mr. Kay Robinson; Miss Beard and Mrs. S. A. Barnett are Vice-Presidents; and we have as patrons Lord Avebury, Dr. Kimmins, Sir Richard Melville Beachcroft, and Prof. Sadler.

The object of the Society is the promotion of correspondence between city and country schools. The country schools send up Nature specimens—flowers, wild fruits, leaves, marine objects, fossils, grasses, &c.—to their city friends, and the town schools return letters, picture post cards, magazines, scrap albums, home-made toys, and any other objects of interest which they can provide. Careful instructions are given to avoid the uprooting of rare plants, and the taking of birds' nests or eggs, for the purpose of the correspondence.

Almost the only difficulty which we have to meet is connected with the expense of postage of correspondence. But at present the London Council and some of the other educational authorities allow cost of postage from their schools (to an amount limited in some cases to 10s. a year from each school), and it is hoped that by degrees other County Councils will grant the same favour. In many cases the cost is kindly defrayed by the teachers and scholars themselves or by private friends, and we are very grateful for any donations or subscriptions to our funds for paying postage from schools where the expense is not otherwise provided for.

At present we have about 130 pairs of schools in the society, in addition to a certain number of town schools which are kindly supplied with flowers, &c., by private senders. A visitor to any of our "Mutual Aid Schools," after the arrival of a parcel from their correspondents, would be quickly convinced of the pleasure and interest aroused in both teachers and scholars by the work.

Letters from many schools might be quoted, showing appreciation of the benefits received and given. . . . Some of the reports from the town schools are touching in their appreciation. . . . We are always glad to hear of fresh schools willing to join the society, and more especially country schools in the counties of Warwick, Gloucester, Somerset, Middlesex, and the East Riding of Yorkshire, where the County Councils have granted cost of postage. Schools desiring to join are requested to apply to Miss O. L. Cobb, 40 Redlands Road, Reading; and other correspondence should be addressed to the Hon. M. Cordelia Leigh, Stoneleigh Abbey, Kenilworth.—I am, Sir, &c.,

M. CORDELIA LEIGH.

COLLEGE OF PRECEPTORS.—TEACHERS' DIPLOMA EXAMINATION.

CHRISTMAS, 1909.

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CURRENT EVENTS.

Fixtures.

Prof. Michael E. Sadler will take the chair at the meeting of members of the College of Preceptors on May 4, when Mr. J. S. Thornton, B.A., will read a paper on "School Recognition in England in the light of foreign practice."

* * *

Monsieur A. Philibert, Avocat, will address the Société Nationale des Professeurs de Français en Angleterre on "Le Génie Breton" at the College of Preceptors, on May 28, at 4 p.m.

* * *

The Association of Assistant Masters in Secondary Schools will hold a General Meeting at the High School, Nottingham, on May 23, at 2.30 p.m.

* * *

The Summer Meeting of the Association of Assistant Mistresses in Public Secondary Schools will be held at Cardiff Intermediate School for Girls on June 4.

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The fifth biennial Course of the Oxford School of Geography will be held in Oxford, August 8–25. The chief courses will probably be on the geography of the British Isles and Empire. Practical work. Detailed programme in June. Apply as soon as possible to the Secretary, Vacation Course, School of Geography, Oxford.

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The Local Lecture Summer Meeting of the University of Cambridge will be held at York, July 22 to August 17.

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The Second International Conference on Elementary Education will be held at the Sorbonne, Paris, August 4–7. Information from Mr. Ernest Gray, M.A., L.C.C., 67 Russell Square, W.C., Representative of the International Bureau for England.

Honours.

The University of Edinburgh proposes to confer the following honorary degrees on July 8:

D.D.: Rev. George Gardiner, M.A., B.D., Kirknewton; Rev. John Henry Jowett, M.A., Carr's Lane Congregational Church, Birmingham; Rev. Prof. H. A. A. Kennedy, M.A., D.Sc., New College, Edinburgh; Rev. Prof. John Wood Oman, M.A., B.D., D.Phil., Westminster College, Cambridge.

LL.D.: Chief Scout Lieut.-General Sir Robert Baden-Powell, K.C.B., K.C.V.O.; Lord Hugh Cecil; Prof. John Chiene, C.B., M.D.; Mr. James Avon Clyde, M.P., K.C.; Prof. Matthew Hay, M.D., University of Aberdeen; Mr. Thomas Hunter, W.S., Town Clerk, Edinburgh; Prof. John Kirkpatrick, M.A., Dr. Jur.; Mr. Thomas Kirkup, M.A.; Prof. W. H. Perkin, Ph.D., M.Sc., F.R.S., Owens College, Manchester; Mr. Thomas Ross, architect, Edinburgh.

Mus.D.: Mr. F. H. Cowen, Mus.D. London; Mr. George Henschel, Aviemore.

The Senatus have also offered the honorary LL.D. degree to Commander Robert Edwin Peary, U.S. Navy, to be conferred on the occasion of his visit to Edinburgh in May.

The University of Liverpool proposes to confer the honorary degree of LL.D. upon Mr. John Burns, the Earl of Cromer, Sir Archibald Geikie, Viscount Morley, and the Earl of Rosebery on June 22, when the Prince of Wales is to receive the same degree.

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Sir William Ramsay, K.C.B., F.R.S., &c., has been nominated President of the British Association for 1911.

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Sir Archibald Geikie, President of the Royal Society, has been elected a Foreign Member by the Royal Danish Society of Science.

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Dr. S. A. Hirsch has been presented with a testimonial in celebration of his completion of thirty years' service as Theological Tutor at Jews' College. The presentation was arranged by the College Union Society, and comprised a portrait of Dr. Hirsch (which is to hang on the walls of the College), a cabinet of cutlery, a silver salver, and an illuminated address in an album.

Endowments and Benefactions.

Columbia University has received from anonymous donors £70,000 for the erection of a building for the Faculty of Philosophy, and £3,000 for agricultural education. Tufts College is to receive £8,000 for fellowships, under the will of Mrs. Mary A. Richardson.

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The late Mr. William Jones, of Birkenhead, has bequeathed to the University of Liverpool £2,000, to establish a Research Fellowship in History.

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The late Mr. Pierce Malone, of Phibsborough, has bequeathed £1,500 to found a scholarship in the National University of Ireland, to be "awarded each year, in such subject as the Senate of the said University shall appoint, to the most successful competitor."

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Glasgow University has received £5,000 by way of legacy from the estate of the late Mr. Alexander Fleming.

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Clifton College Annual Report states that the Bishop of Hereford (the first Head Master) has contributed £500 to the cost of the extension of the chapel (about £9,000) and has promised to found three scholarships, of £33 each a year, for day boys. Mr. Henry H. Wills has promised to present an organ to the chapel (about £2,500) as a memorial to his brother, the late Mr. Maitland Wills.

Scholarships and Prizes.

Lady Margaret Hall, Oxford, will offer for competition in 1911 the Old Students' Scholarship of £40 a year, the Mary Talbot Scholarship of £40 a year, and a Jephson Scholarship of £35 a year.

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St. Hugh's Hall will offer for competition in 1911 one scholarship of £25 a year.

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Emmanuel College, Cambridge, offers, in October, an Exhibition of £50 a year for two years to an Advanced Student. Apply to the Master by October 1.

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A list of the scholarships and exhibitions awarded by the University of London, by the schools of the University, and by institutions at which there are teachers recognized by the University, will be found in the *London University Gazette*, March 30.

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Royal Holloway College (University of London) offers twelve Entrance Scholarships of £50 to £60, and several Bursaries of not more than £30, tenable for three years. Examination, June 27. Names must be entered by May 28. Forms and particulars from the Secretary.

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The Department of Agriculture and Technical Instruction for Ireland will award, in August, (1) six industrial scholarships of £80 each, renewable for a second or a third year, to persons engaged in some of the higher branches of industry; (2) six commercial scholarships of £100 each, tenable for two years, to persons having a sound general education and some commercial experience.

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The *Practical Teacher* offers free to any of its subscribers that are certificated teachers any one of a dozen courses of technical instruction given by the International Correspondence Schools. Particulars of these technical scholarships are given in the supplement to the *Practical Teacher* for April (35 Paternoster Row, E.C.).

Appointments and Vacancies.

Mr. F. G. Ogilvie, C.B., Principal Assistant Secretary of the Technological Branch of the Board of Education, has been appointed to the new post of Secretary of the Board for the Science Museum, Geological Museum, and Geological Survey. He is succeeded by Mr. E. K. Chambers.

Dr. H. F. Heath, Director of Special Inquiries and Reports, has been appointed Principal Assistant Secretary of the Universities Branch of the Board, in combination with his present post.

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Mr. John Alexander Smith, M.A., Fellow of Balliol, has been elected to the Waynflete Professorship of Moral and Metaphysical Philosophy at Oxford, in succession to Mr. Case.

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Candidates for the Slade Professorship at Oxford must send their applications (eight copies, stating their proposed subjects of lecture and the amount of time they can give to the work of the Chair) to the Registrar of the University by May 7.

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Candidates for the new Wykeham Professorship of Ancient History at Oxford (£900) must send their applications to the Registrar of the University by May 21.

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Mr. W. F. Butler, M.A., Professor of Modern Languages in Queen's College, Cork, author of "The Lombard Communes," has been appointed Assistant Commissioner of Intermediate Education in Ireland, in succession to the late Dr. Bellingham Brady.

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In Manchester University, Mrs. Rhys Davids, Fellow of University College, London, has been appointed Special Lecturer in Philosophy; and Mr. George Unwin, Lecturer in Economic History in Edinburgh University, Professor of Economic History.

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Mr. Robert Donovan, B.A., Secretary to the Dublin Commissioners under the Irish Universities Act, has been appointed Professor of English Literature in the National University of Ireland.

Mr. Alexander Mackie, M.A. Edin., Principal of the Sydney Training College for Teachers, has been appointed Professor of Education in the University of Sydney.

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The Very Rev. William H. Brown, Vice-President, has been appointed President, of St. Cuthbert's College, Ushaw, in succession to the late Mgr. Corbishley.

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Prof. Viljoen, Victoria College, Stellenbosch, has accepted the post of Director of Education in the Orange River Colony, in succession to Mr. Hugh Gunn, resigned.

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The Rev. P. A. Micklem, M.A., Hertford College, Oxford, has been appointed Principal of the Brisbane Theological College, Nundah.

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The Rev. P. T. Williams, M.A., Jesus College, Cambridge, has been appointed Warden of St. John's College, Auckland, N.Z.

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The Professorship of Physics, University College, Reading, is vacant by the resignation of Prof. Burch, D.Sc., F.R.S.—unfortunately through illness.

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Mr. H. H. Jeffcott, Head of the Meteorological Department of the National Physical Laboratory, Teddington, has been appointed to the Chair of Engineering in the Royal College of Science, Ireland.

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Mr. C. L. E. Clair Heath, M.I.M.E., Lecturer on Engineering, Hull Municipal Technical College, has been appointed Principal of the new Technical Department of Rutherford College, Newcastle-on-Tyne.

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Miss M. A. Whitelaw, M.A. Dub., Second Class Mathematical Tripos (1897), Head Mistress of Auckland Girls' Grammar School, and formerly Mathematical Mistress at Wycombe Abbey School, has been appointed Head Mistress of Wycombe Abbey School, in succession to Miss Dove.

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Mr. H. E. Rayner, B.Sc. Leeds, L.C.P., Principal of the York Municipal School for Girls, has been appointed Principal of the Huntingdon County Secondary School at Old Fletton, near Peterborough.

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Mr. James Cunnison, M.A. Glas., has been appointed Lecturer in Economics at Fircroft College, Bournemouth (the first realization of a joint scheme of Oxford University and the Workers' Association).

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Mr. W. S. Armour, B.A., Jesus College, Oxford, has been appointed Head Master in the Indian Educational Service, United Provinces.

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The Head Mastership of Sir Joseph Williamson's Mathematical School, Rochester, is vacant by the death of Mr. Charles Bird, B.A., who held the post since 1880.

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Mr. R. H. Ferard, M.A. Oxon., one of H.M. Inspectors of Secondary Schools under the Board of Education in England, formerly Tutor and Dean of Exeter College, Oxford, has been appointed Rector of Edinburgh Academy.

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A Head Master (Graduate) is required for Latymer School, Edmonton (September). £300, rising to £400. Forms of application from Mr. B. S. Gott, Guildhall, Westminster, S.W., with whom applications (with four copies) must be lodged by May 10.

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A Head Master is required for the Modern Languages Department of the Royal Belfast Academical Institution (September). Applications to be lodged with the Secretary by May 7.

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Miss Jean H. Kennedy, M.A., Assistant in Leith Walk Public School, Edinburgh, has been appointed Mistress of Method under the Edinburgh Provincial Committee for the Training of Teachers.

Literary Items.

In Messrs. Longmans' March list we note "The Strength of England," a politico-economic history of England to the reign of Charles I, by J. W. Welsford, M.A. Cantab.; "A Study of the Drama," by Prof. Brander Matthews, of Columbia University; and "Landmarks of British History," by Lucy Dale.

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The same publishers promise at an early date "A History of Wales," in two volumes, by Prof. J. E. Lloyd, M.A., of Bangor University College; and "The Roman Empire: Essays on the Constitutional History from the Accession of Domitian to the retirement of Nicephorus II (A.D. 81–1081)," in two volumes, by the Rev. Dr. Bussell, Fellow and Tutor of Brasenose College, Oxford.

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Mr. Murray promises shortly the third and final volume of Prof. Mackail's verse translation of "The Odyssey"; and a volume on "Roman Cities of Northern Italy and Dalmatia," by Prof. Fotheringham, of Princeton University.

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Messrs. George Allen & Sons will shortly publish "The History of Venice in the Thirteenth and Fourteenth Centuries," by F. C. Hodgson.

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Sir James Yoxall has written a novel based on the dramatic period of Goethe's life immediately following his return from Italy. It will shortly begin to appear serially in the *Schoolmaster*.

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The University of Christiania, on occasion of its centenary next year, is going to publish a volume on the history of the University and of scientific progress in Norway.

General.

The Commissioners appointed under the Irish Universities Act, 1908, have issued a statute extinguishing separate lectureships in Spanish and Italian in University College, Dublin, and instituting in lieu thereof a "Lectureship in the Italian and Spanish Languages and Literatures," with a stipend of £300 a year.

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The L.C.C. has taken 4,000 square feet of space at the Japan-British Exhibition for the display of educational objects, methods, &c.

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The University of Pennsylvania is going to build "the most complete biological laboratory yet erected," at a cost of some £50,000.

SECONDARY SCHOOLS ASSOCIATION.

The Annual Meeting and Conference of the Secondary Schools Association was held at the Caxton Hall (April 6), Sir Philip Magnus, M.P., presiding. Among those present were representatives of many Local Education Authorities and educational associations, as well as other educationists.

Sir Philip Magnus, M.P., in moving the adoption of the report, emphasized the fact that the Association was quite independent of any political bias and not associated in any way with any political party. They would see that the Association had really done a large amount of useful work during the year, and by that work it had justified its existence. One of the chief acts of the Association, which occupied a very large amount of time and involved considerable correspondence, was in connexion with the Finance Bill. During the year they had thought it necessary to do all they could to obtain exemption for governors of secondary schools holding land from which the schools got their income from some of the new taxes imposed by the Finance Bill. The Board of Education exercised more influence over secondary than over elementary schools. That arose from the circumstance that secondary schools were placed under the control of the Board without any limiting conditions as to the direction or amount of control the Board might be capable of exercising, so that, by means of regulations annually issued, the Board were able to determine the shape of the curriculum and to influence their organization to a very great extent. It was almost a despotic power, and, though there were very capable experts at the Board of Education, such an Association as theirs was needed to watch them. Dr. Walmsley seconded the adoption of the report, and the motion was carried. The Dean of Canterbury moved, and Canon Childe (Cheltenham) seconded, that Sir Philip Magnus, M.P., and the Right Hon. Henry Hobhouse should be elected President and Vice-President respectively, and this was agreed to. On the motion of Mr. Lemon (Reigate), Sir William Chance, Bart., was elected Hon. Treasurer, and the Rev. Canon Rawnsley Hon. Secretary. After re-election of the Committee and some other business, Prof. Sadler read the following paper on

THE FUTURE OF ENDOWED SCHOOLS IN NATIONAL EDUCATION.

Our endowed schools are a characteristic feature of English education. No other country has them in such variety or with such long continuity of tradition. Their legal status, which gives them stability, and their semi-independence, which permits self-adaptation to changes in social need, reflect the English view that education (viewed as a whole) is a quasi-public, quasi-private function of the national life, and therefore rightly neither a State monopoly nor exclusively the concern of private enterprise. The statutory recognition, protection, and superintendence of endowed schools is a *via media* between two extreme types of educational organization—viz., State or municipal organization and individual or corporate adventure. We wisely recognize all three types, but the endowed schools are the keystone of the present structure of our secondary education.

History and Characteristics.

The English endowed schools survived the criticism of the eighteenth century (voiced in Great Britain by Adam Smith, and fatal to the corresponding institutions in France) because a sufficient number of them were vigorous and effective and because many more showed themselves capable of timely self-reform. They were purged and reorganized by the successive Commissioners of the nineteenth century. And they provided points of departure for the extension of secondary education which in England began on a large scale twenty years ago. Without the special opportunity which endowed schools offered, the genius of Arnold, of Ridding, of Thring, and of Frances Mary Buss would have missed its most characteristic expression. Three times within the last hundred and thirty years the endowed schools have acted as breakwaters against revolutionary haste in educational policy. They have saved us in turn from educational bureaucracy and from a misplaced confidence in the operations of commercial supply and demand. They have been sensitive, however tardily, to the new educational ideas which are, for the most part, first tested in private enterprise; they have been responsive, however reluctantly, to the new social demands which are, for the most part, necessarily enforced by the State. They have attracted the munificence of private benefactors and, to a remarkable degree, have retained the affection of their *alumni*. They have made it possible for a great and fruitful variety of religious traditions to be woven into the fabric of national education. They have been a link between different social groups in the community. They have enabled England to make her great contribution to the modern theory of secondary education—namely, the proof that membership in a school community and the sharing in responsibility for the welfare of its corporate life are valuable factors in the building up of character.

It will be readily allowed that a type of educational institution which has rendered such excellent service to the country in the past has *prima facie* a strong claim for continued encouragement—for encouragement liberal in proportion to the increasing cost of efficient maintenance and so bestowed as to permit freedom of growth and of local variation. But are the signs of the times favourable to the hope of such encouragement being given?

What of the Future?

In opening our discussion this afternoon, I desire to submit two questions for your consideration. First, is the endowed school of the older English type merely a survival from a past state of things, a survival which we may now be content to see superseded by institutions under State or municipal control, or does it stand for a principle which in the national interest should be maintained? Secondly, if under the special conditions of English life, semi-autonomous endowed schools under various types of governing body are deemed a valuable factor in national education, is the present policy of the Board of Education in regard to them well designed in all its features to secure their future efficiency from the point of view of the public interest?

Preliminary Admissions.

Any one endeavouring to reply in the affirmative to the first of these questions would doubtless qualify his answer by three admissions. He would allow, in the first place, that a considerable number of our endowed schools came into existence because at the time of their foundation there was no Local Authority specially charged with the duty of supplying the educational needs of the district. For generations the English Central Authority was jealous of any extension of municipal powers and took no steps to encourage municipal enterprise in education. Public opinion, on its part, was too suspicious of the ulterior purpose of the Central Authority to regard with a friendly eye any plan for the organization of any part of national education by the State. The sanctioning of a succession of locally endowed schools, governed as educational charities by trustees, was a convenient way of meeting a need which was admittedly urgent and politically embarrassing. Now that both the Central and the Local Authorities are actively engaged in educational organization, it is natural and right that many of the endowed schools should pass under the control of the authority which, had it existed or been educationally active at the time of their foundation, would from the first have had them under its charge. It would be as readily admitted, in the second place, that municipal effort in secondary education is healthy and expedient, good for the body which makes it and for the community in whose behalf the effort is made, and that therefore any idea of securing a monopoly for non-municipal secondary schools should be scouted as unreasonable and shortsighted. Thirdly, it would be granted, not least heartily by those who value the educational tradition of the religious bodies, that no ecclesiastical authority should be allowed to exert a dominant influence in any grade of national education, such domination being incompatible with the just claims of the secular society and proved by experience to be, at any rate under modern conditions, injurious to the spiritual welfare of the Church concerned.

Discouragement Inexpedient.

But, with these qualifications, the answer to the first question should, I submit, be to the effect that the discouragement, and still more the elimination, of semi-autonomous endowed secondary schools of the old type would be highly inexpedient in the public interest. Inexpedient for three reasons: first, because (with due guarantees for efficiency) variety of educational effort and tradition is in itself valuable, and because the existence of a considerable number of endowed schools, varying among themselves in history and in method, is the simplest (though not the only) way of securing such variety. Secondly, because at its best the older type of endowed school often, though not always, has regard to the needs of some social group (not by any means limited by mere income) and seeks to make the children of that group

valuable citizens by inculcating the claims of the community upon the special service which the group can render in the economic and social conditions of the time. In order to do this effectively, a school must be able to presuppose, among the great majority of those whom it trains, home conditions and home influences congruous with and supplementary to its own course of training and instruction. As one factor in national education, this group training has a value cognate to the older forms of apprenticeship. It hands on a social tradition, a standard, a code, more by the unconscious influences of environment and comradeship than by rule or precept. The third reason for retaining a sufficient number of the endowed schools in their older form as one element in national education is that the Local Education Authority would not by itself be able to stand out—in the sphere of higher secondary education, at any rate—against stringent central control of the courses of study. In alliance with the semi-independent endowed schools it can secure a due share of freedom and initiative. The endowed schools, a third party in the organization, are the natural allies of the Local Authority against undue claims on the part of the Central Authority, and, on the other hand, the natural allies of the Central Authority in resisting any tendency on the part of the Local Elected Authorities to sacrifice the interests of liberal education to utilitarian demands, and also in restraining a proneness on the part of some local officials towards a too anxious interference with the internal working of a competently staffed secondary school. Each of the three factors is necessary to the welfare of education—the Central Authority, the Local Authority, and the semi-independent endowed school. But the excessive power of any one of the three is to be deprecated.

Trend of Educational Policy.

The last eight years of secondary education in England have been historic years of crisis. There has been loss as well as gain, but, taking the results as a whole, the nation may justly congratulate itself upon what has been achieved. A violent break with the past has been avoided. The claims of democracy to a wider range of educational opportunity and to a larger share in the best traditions of English secondary education have been generously met. The experience of the older types of school has been blended with new social aspirations and with new conditions of public control. The immense importance of the change has been in part concealed by the quietness of most of the operations which have brought it about. Never in English educational history has there been so rapid and momentous a transition with so little public controversy or with so much good feeling and mutual consideration.

The changes, if we regard them as a whole, follow a clear trend of policy. Secular authority in secondary education has gained upon ecclesiastical. The State has established an almost universal right of inspection. The Local Authorities have made good their claim to a large representation upon the governing bodies of all local endowed schools. The power and (what signifies more) the influence of the permanent officials has increased. And the amount of public aid to secondary education has been greatly enlarged.

Suggestions of Caution.

For my own part, I think that all these changes, if made in due measure, will work out in existing circumstances for the good of English secondary education. But the danger is lest changes in these different directions should be pressed too far. In three respects, it seems to me there is reason to deprecate what has been done and to hope for its future modification. First, the pressure to secure the maximum of free places has in some cases been unwise in the best interests of education. Secondly, the regulation that the governing body of every aided secondary school must contain a majority of governors appointed by a Local Authority or *ex-officio* representative of the rate-payers would, if universally pressed, be pedantic and doctrinaire. Thirdly, in the existing conditions of religious life in this country, there is reason to regret the temper of that regulation which excludes from any share in Government grants (to meet the cost of which members of all faiths contribute) all schools (with certain privileged exceptions), the trust deeds of which require any member of the teaching staff, or a majority of the governing body, to be members of a particular denomination.

Danger Ahead.

These things, however, are alterable. Experience may lead to their modification. After all, a little elasticity will relieve the pressure. And "waiver" is a blessed word. But one who surveyed the future of the endowed secondary schools of England might be disposed to see in other directions an even more serious menace to their future well-being and moral autonomy. He might say to us: "What has yet been done to make the profession of assistant teacher in the vast majority of English secondary schools attractive to men of calibre or even tolerable to them in middle life and in advancing years?" He might say to us: "What will be the real effects upon the higher secondary schools of a State-leaving examination, necessarily measuring the efficiency of instruction by a series of intellectual tests, which are likely to advance in severity and are certain to preoccupy the minds of the teachers whose work will be judged by the success of their pupils in them?" And (he might continue) how unlikely is it that the establishment of a State-leaving examination will be indefinitely deferred unless the examinations now conducted (and, it is admitted, from the point of view of pure examination, efficiently conducted) by external authorities are brought into intimate connexion with the system of inspection. Further, he might ask whether it has been wise for the governing bodies of secondary schools to remain so long unorganized for mutual information and, when necessary, for combined and effective protest. But, to the last of his three questions, at any rate, those who have united in forming the Secondary Schools Association would be able to reply without misgiving.

A keen discussion followed. Mr. J. S. Thornton (University College School) held that the schools for whose interests Prof. Sadler had been pleading were not "Public" schools at all, but private schools. Neither Central nor Local Authority had any kind of say in their government. And so, although people were so slow to see it, the brother and the comrade in arms of such schools was the too often and too unjustly derided private school. Of course, the private school at its worst was worthy of condemnation, but the private school at its best was the best of all schools. These seemed likely to go under, because of the unfair competition of the municipal school, which was good in its own place, but should confine itself to its right position.

Mr. T. Garbutt (Secretary to the Bradford Local Education Authority) protested that there was no Education Authority that did not view with the greatest possible respect and admiration the work of the endowed schools. (Mr. Thornton: "You undersell them.") No; on the contrary, they made large grants to every secondary school in Bradford. Nobody could say that they had done any other than encourage the continuance of the old secondary schools and to foster the creation of new ones for all sections of the community.

The Rev. Dr. Powell (Bridgwater) said that Prof. Sadler had pointed out how the secular authority had gained on the ecclesiastical. That was no doubt true; but there was another side to that question which did not perhaps touch the large towns where they got the best and most competent men serving. That was not so in the smaller towns: there they often got men absolutely incompetent to adjudicate on any school matter. The Board of Education, with its tremendous powers and its tremendous arm reaching over them all like a tentacle, almost crushed the trustees out of existence. It was very hard to coordinate the Board, the trustees, and the Local Authority.

Mrs. Pilcher (Aske's Haberdashers' School) said Dr. Powell spoke as if the people of this country consisted entirely of men. In the smaller country towns there were quite as many women as men, and women of considerable ability. If in these smaller towns a little more pains was taken to put women on the County Council, they would get a little more wisdom in the management of schools.

Mr. F. E. Lemon (Reigate Grammar School) said the position was often assumed by County Authorities that no school should receive rate aid which did not also receive State aid. Governors *qua* governors were reduced to a position in which it would not matter very much whether they had any great intellectual powers, because they really now had very little to do with the government of the school. So far as management of finance was concerned, they were allowed to a certain extent to spend money, but were controlled by the County Authorities. The whole position of the governor was altered and was going down. The rule that town councillors should form a majority of the governing body had not altogether raised the tone, but, taking them all round, they had got quite interested, and if they had not had the best education themselves they were interested in others having it.

The Rev. Canon Rawnsley (Hon. Sec.) observed that throughout the paper they were all aware of a sort of under-current of a demand for autonomy in the management of their schools and also for more variety throughout. He thought they would be wise in looking upon recent changes as experimental in the full belief that they were not definitely stereotyped or fixed. He believed that after one or two years more of the Regulations they would find that there were certain things which had gone wrong. He referred at some length to the experience of Miss Burstall, at the Manchester High School for Girls, where scarcely half the required 25 per cent. of capable free-placers can be found. He implored Educational Authorities to believe that the spirit of character formation for the well-being of our country really lay in their fostering experiments and leaving them to men and women competent to deal with the question, so that, instead of stereotyping our schools, they would endeavour to keep alive local peculiarities, local traditions, and foster differences of school character rather than try to make them one monotonous whole. The Board of Education did not realize, when it pressed forward its demand for free places, that it was really killing at its fountain head the best interest of men and women in the counties who were educationally-minded.

Mr. S. H. Butcher, M.P., said:—I listened with immense pleasure to Prof. Sadler's paper, which seems to me to show that perfect fairness of spirit and even balance of mind which we have long learned to expect from him. I was very glad at his general conclusions. There is no doubt, I think, that the municipalization of education does most inevitably tend to a certain uniformity of type: and in two ways. On the one hand, you have the effect of a kind of educational bureaucracy in the locality itself. On the other hand, you have the effect of the Central Authority, and of that growing army of officials which is controlled from the Board of Education. I rejoice that Prof. Sadler laid the great stress he did on the eminent and distinctive merit of the endowed schools taken as a whole, in giving us in England a variety of type, not only of educational methods, but also of traditions, educational and social, and which, I cannot help thinking, produces a certain composite sense and fosters local patriotism. As a further argument in favour of maintaining elasticity, it seems to me the higher you go in the scale of education the more you want to be free from mere routine and from that kind of administrative rigidity which goes with routine. A certain rigidity of type which is almost inevitable in the case of elementary education becomes a drawback when you get into the region of secondary education; and, although it is quite true that, until 1902, the secondary system was unorganized and chaotic, our effort ought to be to see that that organization, which has been marvellously successful on the whole, does not tend towards mere mechanical routine. That is the danger of the moment. I think the Board of Education themselves are thoroughly conscious that they have that danger to contend with. The present unrest arises from the fact that nobody outside quite knows what the policy of the Board is: whether they mean gradually to extend their hold and get a grip on all these institutions or to give them a free hand and only keep them up, by inspection, to a proper standard. Prof. Sadler referred to the leaving examination. I think he said, most truly, that inspection and examination must work together. I am inclined to think that there may be useful co-operation between the Board of Education and the Universities in this matter—I do not mean merely the older Universities, but the newer provincial Universities also—and that, while admitting that the Universities are not equipped with an inspectorate such as that of the Board, yet I do think that the Universities are in many ways better able to carry out an examination than a State department, because the men are so much alive in education to the demerits of examination, the dangers of examination, to the essential point in all teaching—the development of intellectual interest and independence to each pupil—that they are less likely to go by the bare results of an examination than a department which does everything by strict rule. Prof. Sadler spoke of the status and prospects of the assistant teachers as being one of the most anxious problems of the future. Now, for my own part, much as I believe in the virtues of organization, I believe infinitely more in the qualities of the teachers. It seems to me, sometimes, deplorable that Education Authorities, ready to spend enormous sums on the mere material fabric of education, yet are so niggardly as regards the payment of teachers in their service. The two things which seem most pressing are to give to teachers such salaries and such pensions as will induce first-rate men and women to enter the profession.

Mr. Winter (Caterham) said the school he represented was in many ways different from most endowed schools, being established for the sons of Congregational ministers. In connexion with the requirements of the Board of Education they found them ready to meet them in a very liberal and reasonable spirit. They allowed them to have 10 per cent. of free-placers, and included in that 10 per cent. those County Council boys who were paid for by the County Scholarship Fund. In the various details they also found the Board ready to meet them. With regard to inspection they had found it most valuable. They had been supplied with full information as to the result of the inspection, and that had materially assisted them in forming their views. The examination of the school had been conducted by the London University. They, of course, had the difficulty which he presumed a large number of endowed schools suffered from, that, although endowed in a sense, they were not endowed enough, and the real difficulty was the pressure that was brought upon all their secondary schools by the rising competition of the rate-aided or State-aided schools. But he did not think that it was for them, from an educational point of view, to complain of that competition.

Mr. Carruthers (Harpur Trust, Bedford) acknowledged that he was one of those dreadful people, a publicly elected member of an Educational Authority, and said that, although he was Chairman of the Education Committee, Chairman of the Higher Education Committee, and Chairman of the Harpur Trust, not his greatest enemy would charge him with being an educated man. Many of his colleagues were perfectly fatuous in the work of organizing education. They held that public servants ought not to "sweat" their employees, least of all in the work of education. He believed that the great endowed schools had done great work in the past and were capable of doing more. "Our common enemy," he continued, "is the Board of Education. Again and again simple-minded men like me have attempted to make the conditions in our schools reasonable and the Board of Education has stepped in. Again and again we have spent valuable time in coming up to London to interview these autocrats who do not know their own minds. In working on your behalf we have often been worsted in the fight. That was a very wise suggestion that when the Board made new rules they should submit them to people like you who will have to carry them out."

The Chairman said they were very much indebted to the last speaker. Dr. Sadler's paper had certainly been one of more than ordinary interest. One gentleman had complained that the endowment was not large enough. But in virtue of that endowment they occupied a quasi-independent position, which others did not have. A municipal school must be under the direction of the municipality and the Board of Education, but money had always great power, and the very fact that endowed schools did possess means of their own enabled them to occupy a freer position than was possible for the others. What they desired was that the independence which these schools possessed they should continue to enjoy, so that variety might not be interfered with. It was one of the most important things in the educational system of this country that these endowed schools should continue to have that freedom and elasticity which they had before they were placed under the Board of Education. He was particularly struck with the speech of Mr. Thornton, but the subject of private schools was not included in the paper. He was most desirous that private schools should not be pushed out of the educational system either by endowed or by municipal schools. There were many conditions under which such schools gave the best education possible, and some of these gave a kind of education which did not come under any of the categories of the Board of Education and could not well be recognized by the Board of Education, but he would like the Board to take as large a view as possible of the kinds of education they were prepared to recognize. He would like to see the Board of Education absolutely free from politics. He knew the difficulty of it because the President of the Board of Education was necessarily a member of the Cabinet. Yet he did not think it was altogether impossible. He moved a vote of thanks to Dr. Sadler for the extremely interesting paper which he had brought under their notice. It had given rise to a large number of valuable suggestions, which would cause them all to think very carefully over those delicate educational problems to which Dr. Sadler with very much ability had referred.

The vote of thanks was carried with acclamation.

Prof. Sadler replied at some length, and a vote of thanks to the Chair concluded the proceedings.

OTTO SALOMON.

By J. S. Thornton, B.A.

There are many hundreds of teachers in England and Wales, in Scotland and Ireland, who must have read, with a sense of personal loss, the news of the death of Otto Salomon on Sunday, November 3, 1907. He was born in Gothenburg in 1849, and had scarcely begun his studies for the engineering profession in 1868 before he was called by his uncle August Abrahamson, recently left a widower, to help in the management of the large estate he had recently acquired at Nääs, about twenty miles to the north-east of Gothenburg. To his duties as estate manager Salomon soon added an active interest in education, and in such activities uncle and nephew ever worked heartily together as one man. The chief means by which the "work-school" of 1872 was converted into a school—a famous international school—of educational handwork was a visit Salomon paid in the summer of 1877 to Uno Cygnæus, the founder of National Education in Finland.* Cygnæus, as an ardent student of the work and writings of Pestalozzi and Froebel, had no difficulty in convincing Salomon of the educational, as apart from the merely economical or utilitarian, importance of Sloyd. This brings Salomon distinctly into the true apostolical succession.

Visitors from abroad began to come to Nääs in 1880. M. Sluys, the head of a training college in Brussels, came two or three years after and wrote, in charming French, an account of his experiences, from which Sir John Lubbock drew up an article in one of the monthlies that attracted much attention. In 1885 came two lady teachers from London, one of whom wrote a long series of articles in the *Practical Teacher* dealing with the various aspects of Sloyd. Next came Miss Chapman, by whose exertions the Sloyd Association was formed The year 1887 was signalized by the visit of twenty picked students sent by the Italian Government. These came from all parts of Italy—from Palermo to Milan. Miss Emily Lord (Mrs. Walter Ward), with several friends, was a student at Nääs the same year. In 1888 both Miss Lord and Miss Hughes of Cambridge were at Nääs, bringing with them troops of lady students. It was due to the zeal of the students of these years that the Sloyd Union was founded and the English edition of Salomon's lectures published. Two eminent students from Great Britain in the next following years have much contributed to the spread of Sloyd ideas and Sloyd teaching in this country—Mr. J. Struthers, C.B., the successor of Sir Henry Craik at the Scotch Education Office, and Sir Harry Reichel, then Vice-Chancellor of the University of Wales. Mr. Struthers' Government Report on School Occupations obtained an unexpected amount of approbation from his official chief, is filled with sound Sloyd principles, and has been of great service to the Sloyd propaganda. Sir Harry, as one of the chief members of the governing body of the Welsh intermediate schools, found that none of his colleagues on the Board had any knowledge whatever of educational handwork nor any idea of the place it should occupy in the school curriculum. And it would be difficult to exaggerate the importance of the service Sir Harry rendered to the cause of school handwork in Wales and elsewhere when in two successive years he went through the ordinary courses at Nääs, sandwiching benchwork with attendance at lectures and discussions just like any other student. This gave great weight to the address he delivered to the Sloyd Association on his return—an address which was printed *in extenso* in the *Manchester Guardian* and then spread broadcast over the country.

The inspiration of all this activity was not far to seek, and the method of the inspiration was so unique and so successful that some attempt must be made to indicate its nature. Sloyd courses at Nääs differed from similar courses elsewhere—whether in England, Germany, or France—as cheese differs from chalk. I can well remember with what eagerness we sought to get through as many models as possible and with what reluctance we broke off to attend lecture (there was generally one lecture hour to every two hours of benchwork). We thought, and sometimes were not slow to say to one another, that Salomon insisted unduly on that part of the course for which he himself was solely responsible. And we found it difficult to believe him when he told us that, of the two parts of the course, the lectures were the more indispensable. In those days three courses of lectures ran concurrently. Those in the first course were lectures on applied pedagogik, dealing with the underlying educational principles; those in the second were historical, tracing the growth of the idea, from the Reformation to the present time, that bodily as well as mental activities must find their place in the school hours; whilst those in the third dealt with strictly practical matters—with the means and the method of instituting a good Sloyd instruction in the school. The lectures were not read. They might be called colloquial rather than eloquent, and might be interrupted occasionally by a brief question or remark from the students. If there was any strong tendency or general desire to dispute a position or to discuss the various sides of a question, the ordinary lecture next day was omitted and the discussion took its place. And as, every year, many of the students were picked men, men of more or less mark in the countries they came from, there can be no doubt that Salomon himself must sometimes have benefited from the stimulating interchange of opinion. Salomon, in the late eighties, could not be called a proficient in English. And so the first part of every lecture was taken up by some student being called upon to read his notes of the last lecture. This gave Salomon an opportunity of seeing if his meaning had been fully grasped, and might lead to some further discussion or exposition. No indication was given beforehand who this student should be, and the fear of disgracing oneself (as happened in one notable instance, to the great amusement of the rest) led to a high average of note-taking.

Salomon, furthermore, was very anxious that his students should stay to the very end of the course; for just as, in the Society of Friends, the Letter from the Yearly Meeting sums up and drives home the leading lessons of the ten days' General Assembly, so Salomon, in his address at the final ceremony of the course—an address often marked by strong religious feeling—in brief, pregnant sentences, impressed on his students, now become his friends, the convictions he had been urging in the past weeks. It was in such ways that Sloyd apostles were made.

Such a blending of practice and theory, such a sifting of views and opinions offered for acceptance, such preaching of an educational crusade, the world has seldom seen. No wonder his ideas, in their strength and sometimes in their weakness, were so thoroughly appropriated and afterwards so widely and zealously diffused.

Some of his students, on coming home, may have imagined him, from across the sea, asking them, in the words of Scripture, "Know ye what I have done to you?" For, to their surprise, thoughts and facts that seemed to refer only to one small corner of school work threw fresh light on all their work. Though they thought themselves, some of them, past the age of enthusiasms, enthusiasms awoke in them which last to this day. The ideas they had so thoroughly appropriated could not lie idle: full soon they germinated, throwing root downward and stalk upward.

Many of my friends and comrades can illustrate this in a way special to themselves. They can tell of what Sloyd has done in Manchester, Bradford, Sheffield, and Leeds, in the Midlands, in London and Southampton, in Scotland, Wales, and Australia, in Canada and the United States. Let me speak only of what I know, and give the instance that bulks largest in my experience.

Some months, perhaps a year, before the course at Nääs in August, 1888, Ernst Trier, the Principal of the People's High School at Vallekilde in the North of Zealand, which for many years was the most numerously attended of all the Danish high schools, was on a visit to Sweden in search of health. He, like Salomon, was of Jewish descent, and the two men were greatly drawn to one another and became each of them interested in the other's work. Trier told Salomon much more than he knew before of Grundtvig and his work of popular enlightenment, which makes a Dane feel as much joy and pride in his native country as ever an ancient Jew did in Mount Zion. Much of this Salomon communicated to us in one of his historical lectures. Not one of us had ever heard either of Grundtvig or the High School; and on one of us, Mr. David Morgan Lewis, Demonstrator in Physics at Bangor, what was said made such an impression that he instituted inquiries in Denmark itself, and, when he went to Nääs again next year, spent some weeks in Denmark on his way. All this he told about twenty of us one evening after supper. Mr. Lewis soon afterwards became Professor of Physics at Aberystwyth and has not been able to pay further visits to these northern lands. But in 1892 I followed in his tracks, and with the exception of 1896 have spent some part of every year in one or other of these countries ever since.

In his later years, Salomon, true to his mission of redressing

* Perhaps the only full account of Cygnæus in English is to be found in the *Journal of Education*, September, 1890.

the balance between work for the body and work for the mind in school, added to the usual Sloyd courses other courses in organized games and cookery, in needlework, fruit-preserving, and gardening. This necessitated the erection of handsome new buildings.

In the spring of 1907, Otto Salomon was at Nauheim, where he had often been before. On his doctor's advice he sought to find some one who could take his place at the summer courses; but, failing to find a suitable substitute, he ventured to take them once more himself. He took to his bed and scarcely rose from it the last two or three months of his life. It was only after death that the real cause of his illness was found, and probably no surgical skill could have saved his life. He was buried (November 7) beside his uncle near the Castle at Nääs. Can we find in all the last century a man who has exercised a wider or more beneficent influence on school life—a man who has done more to promote harmonious, all-round development, and so make school a happier place than before?

Abrahamson died in 1898, leaving the estate of Nääs and a sum of £21,000 to the State in order to continue, under sufficiently elastic conditions, the work thus begun. The bequest was accepted in the following year and the estate placed under the management of the Education Department. Its first duty, under the provisions of the will, was to constitute a Board of five managers, with whom the appointment of a successor should lie. But a man like Salomon it is hard to replace, and no successor has even yet been appointed. Meanwhile Prof. Franz von Schéele, First Inspector of Elementary Schools in Stockholm, conducts the usual five- or six-week courses.

REVIEWS.

Should History be Taught to Schoolboys?

(1) *Studies in the Teaching of History.* By M. W. Keatinge, M.A., Reader in Education in the University of Oxford. (4s. 6d. net. A. & C. Black.) (2) *The Teaching of History.* By Dr. Oskar Jäger. Translated by H. J. Chaytor, M.A.; with an Introduction by C. H. Firth, M.A. (3s. 6d. net. Oxford: B. H. Blackwell.)

The layman who is most conscious of the part played by historical study in his own education is disposed to feel indignant that such a question as this should be proposed. "How," he may ask in turn, "can a boy's period of learning be better spent than in communion with the great souls of other times, in contemplation of human conduct on the great scale, and in the reconstruction of that past upon which the present is necessarily built?" This, however, is merely the attitude of the amateur, who does not stop to consider possible difficulties, particularly those which, arising from the mental condition of the boy himself, are inherent in the question. The study of history demands an intellectual development and a fund of knowledge of human conduct and motive which certainly every boy does not possess. When it is added that the subject-matter is frequently of a highly contentious kind, and that the nearer we get to our own time the more questionable is the truth of received notions, the difficulties appear to be formidable.

Yet there is more beyond. Apart from the continuous yet casual treatment of ancient history involved in teaching the Latin and Greek classics, there is no accepted traditional method of teaching history in the schoolroom: this subject suffers in a peculiar degree from a disability common to all the "modern studies." The general practice is probably that described by Dr. Jäger: it consists, on the boy's side, of memorizing a text-book, and, on the teacher's, of some kind of lecture followed by an examination, oral or written. But, as Mr. Keatinge shows, this is to throw too much of the work on the wrong shoulders, and to deprive the pupil of opportunities for initiative and independent constructive work, whilst demanding too much from the capacity to learn by rote. Any study of which this can be said holds its place in the curriculum by a very precarious tenure. To serve as an educational instrument of value in the schoolroom, a subject must possess a formal side and be so susceptible to organization that it can be applied in exercises which afford pupils plenty of opportunity for work on their own account.

It is this conviction which is the groundwork of Mr. Keatinge's "Studies"; and, in showing how that conviction may be translated into practice, he has rendered a very considerable service to the cause of historical study in the schoolroom. The text-book, lecture, and examination being accepted as integral parts of the instruction, Mr. Keatinge finds the indispensable formal side of the subject in the notion of historical evidence, and the pupil's exercises consist chiefly in the analysis or criticism of concrete instances of evidence of that kind. Material of all degrees of difficulty is to be found in statutes, chronicles, tracts, and the like contemporary documents, in the works of the great historians and memoir writers. About one-fourth of Mr. Keatinge's book is devoted to showing how such "sources" may be used to advantage by boys in the middle and upper forms; in many cases he adds the value of actuality by transcribing pupils' exercises. The author tells us that a sum of twenty-five pounds will supply a complete laboratory—that is to say, a collection of standard books and documents for school use. We suggest that in his second edition he should give as an appendix a full list of "sources" easily accessible to the working schoolmaster. The money does not, apparently, cover the cost of maps, atlases, photographs, lantern slides, or such invaluable archæological collections as the "Album Historique" of Parmentier. While fully alive, as are both our authors, to the dangers of pictorial illustration, we venture to consider that the more material monuments of the past, and consequently their accurate reproductions, have a value as "sources" which is not always surpassed by documents.

It is not to be supposed that Mr. Keatinge thinks of turning the schoolboy into a researcher; the pupil does not "invent history," as Rousseau might say, but learns by examination of particular cases the nature and cogency of evidence as the historian understands it. The study ceases to be what Fitch so unhappily termed "fact-lore," and becomes a formative subject. The examination of "originals" in a more cursory fashion also gives a setting (or atmosphere, as Mr. Keatinge prefers to call it) to the matter of the text-book, without which the latter tends to become jejune and fugitive. In this connexion our author has some very practical hints upon the best use of the blackboard, the "line of time," and genealogical tables, as fixing devices.

But, as Mr. Keatinge fully recognizes, it is scarcely possible to consider the teaching of history apart from the conditions created by our system of public examinations. He states in full the organization which he would secure for the study, given two or three weekly "periods" for modern history, with a small portion of the time ear-marked for detailed work on which exercises can be set. He prints several typical examination papers in full and notices their defects; after which he gives a model paper drafted upon the lines of his book. The examining authority which first adds an optional section to its history paper containing questions of the sort here included will deserve well indeed of its country!

A spurious patriotism, on the one hand, and the desire to turn all instruction into sermonizing, on the other, threaten to obscure, if not to efface, the legitimate office of history as a branch of the Humanities. Both our authors repudiate the thought of falsifying history in the supposed interest of edification, moral or otherwise. Mr. Keatinge finds the ethical value of the study in the critical attitude which the exercises laid down by his method induce. Dr. Jäger is content to rely upon truth of fact for the desired stimulus, warning, and inspiration. Indeed, the candid manner in which the Bonn Professor speaks of his country's educational officials and their pronouncements, and his persistent refusal to join in "flag-wagging," constitute the first claim of his book to attention to-day. Veteran-like, he is *laudator temporis acti.* The Prussian syllabus was a masterpiece *before* 1882, it was admirable in 1854, and the best teacher of history Dr. Jäger has known died in 1848; and so on. He takes a pleasure in traversing all the recognized principles of educational theory. His one statement of method as applied to history amounts to this advice: Give your pupils a "dry light" text-book, refrain from criticizing or contradicting it, supplement it by informal lecturing, and revise and examine, orally or in writing, on occasion. He finds no use for "sources" except those constituted by the classical Latin or Greek texts; yet twice in his pages there is a recommendation to take a class through a piece of evidence in order to confute popular beliefs.

It is difficult to understand why the work has been translated. Over and above its meagre consideration of method, its historical subject-matter is naturally so preponderatingly German that the assistance afforded to the English schoolmaster is very small indeed. Prof. Firth (who thinks that "German boys remain in the same form for a year together, and then move up in a body to the next form") supplies what he calls a "tabular statement

of the historical curriculum of a Prussian *gymnasien*" (*sic*). In view of Dr. Jäger's text this was scarcely necessary; a greater service to English teachers might have been rendered by substituting some two and a half pages from the Prussian *Lehrpläne*. These are not only interesting as statements of the official ideal, principles, and methods; they also make Dr. Jäger's strictures intelligible to the foreign reader. The translator wrongly includes the *Realschule* amongst schools with a nine years' course; and he supplies no index. Mr. Keatinge's index is very meagre; we particularly miss therefrom the ingenuous "Muriel Howard, aged fourteen."

We desire to commend "Studies in the Teaching of History" very heartily to all whose business it is to give historical instruction in schools. Its message, however, is by no means confined to them. The fundamental principle of the book calls for the earnest consideration of all schoolmasters and schoolmistresses who teach any branch of the Humanities in and through the mother tongue. In these days of inspection and "interesting oral teaching," we all of us frequently run the risk of contravening it.

Reformation and Renaissance.

The Reformation and the Renaissance. By E. M. Tanner. (3s. 6d. Clarendon Press.)

The period this volume embraces is one of the most fascinating in European history, and in interest second only to the French Revolution. Yet the upheaval of Europe in the sixteenth century presented far more complicated issues and evolved more stupendous results. These issues and results the author has presented with commendable lucidity. The Papacy is the centre of attraction, and "all roads lead to Rome"—or perhaps we should say to Italy, for the struggle for parts of that country between European monarchs and between Italian princes themselves is the predominant feature of the period. The earlier chapters deal with the state of European monarchies and peoples previous to 1500. France, thanks to the heroic efforts of the Valois kings (particularly Louis XI), had emerged a united monarchy. But the unity was only apparent, for the country was torn by social divisions. Spain and Portugal were at the height of their colonizing career. Italy was merely a "geographical expression." Maximilian's influence and authority as German king were in reality used to oppose the attempts to make a united German State. Yet he did much for the German nation by his patronage of poetry and art, and "with all his faults and failures he had no small share in bringing his country into the full blaze of modern life." The Turks advanced so rapidly because there was no united Christian opposition against them. Opponents of the Papacy regarded them as "a visitation from God."

The story of the Catholic reaction is sordid at best, especially the part pertaining to France; for, although the Reformation in France was more or less an independent movement, "based directly on the study of the Scriptures, guided and controlled by John Calvin," yet the bitterness of political and religious animosity was intense. Throughout the book are scattered superb thumb-nail sketches of the "heralds of revolt"—Erasmus, Luther, Loyola, and others. The plan of the book is avowedly Herbartian, the author's object being "to lead pupils to a pragmatic view" of the subject. Valuable bibliographical references and subjects for essays are added to each chapter; chronological summaries and family tables appreciably add to the value of the manual. Rarely indeed are so many really useful maps found within a single book. Undoubtedly Miss Tanner's book supplies a real want; so far as we know, no such text-book gives so graphic and succinct an account of this difficult period. Teachers and pupils specially interested in the Reformation era cannot do better than obtain this volume. We heartily recommend it as a thoroughly reliable guide.

Differential Calculus.

A Text-book of Differential Calculus. By Ganesh Prasad, B.A. Cantab., D.Sc. Allahabad. (5s. Longmans.)

Although the title-page gives no indication of the fact, there is internal evidence to show that the author intends the present volume to form the first part only of a larger work. The pages now presented to the student include such portions of the differential calculus as are required by candidates taking Part I of the Cambridge Mathematical Tripos Examination or reading for a B.A. or B.Sc. degree of one of the Indian Universities. Accordingly we find an investigation of first principles and of elementary processes of differentiation on the assumption of the truth of the leading theorems of limits, and this is followed by the application of the methods of the calculus to a discussion of the properties of tangents, normals, and asymptotes, to curvature and to envelopes. The subject of curve tracing and the important characteristics of a number of the best known curves form the theme that next claims attention, and, with reference to the treatment of this section of the contents, we would remark that where a variant of the ordinary form of the equation to a curve has been adopted, it would have been an advantage had the zero of measurements been definitely stated. The theorems of Rolle, Taylor, and Maclaurin occupy a special chapter, and it will be anticipated that attention has also been devoted to such subjects as maxima and minima, and indeterminate forms. The writer displays distinct originality in his manner of developing the theory of his subject, and, in considering its first principles, he makes a consistent effort to base the whole on an arithmetical foundation without calling in the aid of geometrical intuitions. Readers will form each an individual opinion as to the wisdom of dispensing with the latter as a means of preliminary illustration. On the other hand, as a subject to which the calculus may be applied with fruitful results, geometry plays as important a part in the present text-book as it does in works on the subject generally. The author's phraseology often tends to impress the reader with a sense of heaviness. A more elastic style would certainly greatly enhance the pleasure of studying the treatise. The cause of the want of freedom may probably be attributed at least in part to the necessity of restricting the text to occupy definite limits. Some methods of notation may be observed which, if not actually original, are nevertheless not generally adopted, and are useful in character if unnecessarily novel with regard to symbols. A number of minor defects in the printing have crept in in the course of the volume, and render a careful revision advisable in the event of a second edition being called for.

GENERAL NOTICES.

MATHEMATICS.

Matriculation Geometry. Books I-IV. By Sáradákánta Gangopádhyáya, M.A. (R. 1, 4. Calcutta and Dacca: The Students' Library.)

The call for a second edition of this work after the short interval of a twelvemonth from the time of publication is a proof that the text-book appeared as an answer to the utterance of a real want. The volume before us constitutes, as far as is practicable, a scientific treatment of the work laid down as compulsory by the Calcutta University in its Matriculation Syllabus. The text generally is very good, but we would draw attention to one or two points which suffice to show that a careful reconsideration of it may result in valuable improvements. First, it is stated that (*a*) "a surface does not occupy space" and (*b*) "a line does not occupy space." What the writer intended is obvious, but it is equally evident that the statements as he has given them are inaccurate. Again, a straight line is defined as "a line traced by a point which moves without changing its direction of motion" This is good; not so, however, the illustration—namely, that "if a point always moves towards the east it describes a straight line." The proof alternative to Euclid's demonstration of I 27 is neat, though there is an attraction for us in the thoroughly simple older method. And still another remark suggests itself—namely, that the wording at the commencement of Euclid's I 13 is open to criticism when contrasted with the form adopted by the earlier school of writers on the subject. Reform is often advisable, and, indeed, necessary; let us be sure, however, that reform is synonymous with improvement.

Examples and Homework in Preliminary Practical Mathematics. By T. I. Cowlishaw, M.A. (Parts I and II, 1s. 6d. each. Longmans.)

Part I is now in its second edition. Essentially this is a reprint of the original issue, but some additions will be found in the form of geometry, and examples valuable more especially to students interested in textile work and chemistry. Part II is new. Framed on lines similar to those guiding the author in the production of his earlier volume, the new publication contains a varied and interesting collection of exercises and problems designed to train the student in the portions of algebra, trigonometry, and calculus that are helpful in practical work. Regarded as the complement of an examination text-book, the volume embraces all that is needed by candidates for the Board of Education (Stage II) Examination in Practical Mathematics. Many questions that have actually appeared in the papers set by the Board find place in the present volume. The insertion of blank leaves for the entry of notes by the reader is excellent, and in these days by no means a novelty. The results of the problems and exercises have not been included in either of the Parts; they are, however, in print and circulation for the use of teachers and private students.

MODERN LANGUAGES.

"Oxford Higher French Series."—*François le Champi.* By George Sand. Edited by Alfred Mercier, L. ès L., formerly Lecturer on French Language and Literature and on Romance Philology in the University of St. Andrews. (2s. 6d. net. Clarendon Press.)

This is a charming volume, one of the four "romans champêtres"—"un petit groupe unique dans l'histoire de notre littérature," as containing "le plus solide" of George Sand's work, "ce que la posterité commençante a choisi pour lui donner l'immortalité littéraire." The author's talent "has been expended on telling this tale of François le Champi in all the simplicity of language in which she is supposed to have heard it told to a gathering of villagers by one of their number, an old village gossip." The linguistic peculiarities are pretty numerous, but M. Mercier in his notes pilots the reader through the difficulties. The introduction, biographical and literary, is in French; and a list of George Sand's numerous works is appended. An excellent edition.

La France: Passé, Présent, Avenir. Par P. M. Crétin, Licencié en Droit de l'Université de Bordeaux, Professeur Privé à la Kgl. Handels- und Gewerbeschule für Mädchen in Potsdam. (M. 2.40. Teubner.)

"Ouvrage présentant un tableau de l'évolution historique, littéraire, artistique de la France, de sa situation politique, administrative, démographique, matérielle, morale, intellectuelle, militaire, économique, etc., et quelques considérations sur son avenir; avec 10 graphiques, 2 cartes et 1 plan." The enumeration of subjects looks rather formidable for a slim volume of 180 pages, but the points are most carefully selected, and treated with marked discrimination and with competent knowledge. "Mon premier souci," says the author, "a été d'être véridique"; and we have detected nothing that would convict him of bias. The little volume is very instructive and admirably written.

Spanish Composition. By George R. Macdonald, Manchester Municipal School of Commerce. (Hirschfeld—Hossfeld's Educational Series.)

A slim volume containing a selection of anecdotes and of passages from the best English authors for translation into Spanish, with copious foot-notes explaining difficulties of grammar and idiom. The matter of the exercises is amply diversified and carefully graduated. It will be a valuable training to work through the hundred passages.

Messrs. George Bell & Sons reissue, in "Bohn's Libraries," the classical translation of *The Divine Comedy of Dante Alighieri*, by the Rev. Henry Francis Cary, M.A., revised and furnished with a biographical introduction by Marie-Louise Egerton Castle, a chronological view of the age of Dante, additional notes, and an index. "If no poet ever was liable to lose more in translation," says Ruskin, "none was ever so carefully translated, and I hardly know whether most to admire the rigid fidelity or the sweet and solemn harmony of Cary's verse." A portrait of Dante from the tracing by Seymour Kirkup of the portrait by Giotto in the Bargello, Florence, stands as frontispiece. The volume is handy, well printed, and flexibly bound. We commend it unreservedly.

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This reader is in its 424th thousand, and thus is too well known to require comment. It is steadily kept up to date. There are numerous illustrations.

The New American Citizen: a Reader for Foreigners. By Frances S. Maintz, Newark, N.J. (2s. 6d. Macmillan.)

The aim is to convey in simple form elementary information about the history and the government of the United States, and about the advantages and the duties of American citizenship. The author "has had an exceptional opportunity as a teacher of foreign adult classes to test thoroughly the material" of the volume. One might have expected a somewhat fuller treatment of the matters bearing more immediately and directly on citizenship, at the expense of less relevant general information. However, the book will be useful to the class for which it is primarily intended.

HISTORY.

"Cambridge Historical Essays, No. XV." *Agathocles.* By H. J. W. Tillyard, B.A., Assistant and Lecturer in Greek at Edinburgh University, sometime Research Student of Gonville and Caius College, Cambridge. (4s. 6d. Cambridge University Press.)

This volume consists of the essay that was awarded the Prince Consort's Prize in 1908. It traces the varied career of Agathocles as an adventurer, as a soldier-prince in Sicily, as a warrior in Africa and again in Sicily, and finally as king. Mr. Tillyard discusses the chief extant documents and the theories of expert writers on his subject, and he has had the great advantage of a personal view of most of the historical sites in Africa and Sicily. "The greatness of Agathocles was a thing at which the world was astonished." The significance of this marvel Mr. Tillyard investigates patiently and acutely, and displays with judgment and with fidelity to the ascertainable facts. His style is plain and lucid. There are half-a-dozen illustrations, mostly from the author's own photographs.

The Student's History of England. Edited by David Patrick and William Woodburn. (4s. 6d. Chambers.)

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LAW.

The Law of the Universities. By James Williams, D.C.L. Oxon., LL.D. Yale, Barrister-at-Law, Fellow of Lincoln College, Oxford, All Souls Reader in Roman Law in the University of Oxford. (Butterworth.)

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(*Continued on page* 206.)

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EDUCATION.

Messrs. Swan Sonnenschein & Co. issue *The Schoolmasters Yearbook and Directory*, 1910—somewhat later than usual, but "it is impossible to be accurate and get the work done sooner." We welcome the volume, whatever date it may choose for its appearance; but we know from sage experience the nature of the editor's difficulty, and would venture to advise him to fix his date of publication and ruthlessly cut all information short there and then. Moreover, accuracy is expensive, especially in a work of such enormous detail: the schools number about fifteen hundred, and the names are some fifteen thousand. We trust that attention will be given to the editor's ominous statement that "it is imperative that more financial support should be forthcoming if the book is to retain its present form." Several new features are introduced: notably the inclusion of the names of many women teachers in the Directory. The information is efficiently kept up to date. The work fully deserves liberal encouragement by all educationists.

The *Public Schools Yearbook* (3s. 6d. net, Swan Sonnenschein) has reached its twenty-first anniversary, and has been adopted as the official book of reference of the Head Masters' Conference. It gives a summary of the work of the Committee of the Conference and an abstract of the resolutions passed at the last annual meeting, and then sets forth all essential information about the various public schools, entrance scholarships, conditions of admission to the more important professions, lists of preparatory schools, &c., all carefully brought up to date. A most useful manual.

With the new year the Williams & Wilkins Publishing Company, Baltimore, commenced the publication of a new educational monthly—*The Journal of Educational Psychology* (including experimental pedagogy, child physiology and hygiene, and educational statistics). The title is meant to be understood in a broad sense as covering all such phases of the study of mental life as concern education. "As a particular feature," say the editors, "we desire to perform for this country a service such as Meumann's *Zeitschrift für Experimentelle Pädagogik* is performing for Germany; that is, to stimulate interest in, and further the progress of, experimental pedagogy." Happily the journal proposes to be entirely independent and catholic; it "is not the organ of any man or institution, or of any group of men or institutions, nor is it the champion of any special movement"; and it will "maintain a high standard of scientific worth and reliability, print what is worth printing, and attack, as skilfully as it may, the problems that press for solution in its field." The opening numbers give high promise. The subscription is only a dollar and a half (say 6s. 3d.) a year—there being no publication in July and August.

The first monthly number of *The School Child* appeared in February (1d.). It is "a Journal for Children's Care Committees and School Managers." The editors "have been aroused by numerous reports to see that, if the elaborate and costly system of book-learning in our schools is to bear proper fruit, it must be accompanied by a corresponding attention to the physical welfare of the children both in and out of school." The articles appear to be well informed and practically useful. Communications for the editors should be sent to Miss M. C. Strachey, 67 Belsize Park Gardens, N.W.; and the trade is supplied by F. Palmer, 14 Red Lion Court, Fleet Street, E.C.

MISCELLANEOUS.

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Cape Colony To-Day, the official guide-book of the Railway Department of the Cape Government, appears in a second edition. It is a handsome volume describing the country in a series of tours, with plentiful illustrations. The work is interesting, instructive, and useful alike to the South African, to the visitor from other lands, and to the stay-at-homes that wish to know what the colony is like.

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The *L.T.A. Register*, which is now in its ninth year, contains the addresses of a vast number of hotels, boarding houses, and apartments, British and Continental, recommended from personal experience by members of the London Teachers' Association (16,500 members). It is sedulously kept up to date, and cannot fail to be extremely useful at holiday times (6d., Office of the *London Teacher*, 9 Fleet Street, E.C.).

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EDUCATION.

Assistant Mistresses in Public Secondary Schools, Association of. Report of twenty-sixth year's work and Annual Meeting. 1910.

Cambridge University Local Examinations: Fifty-second Annual Report of the Syndicate, with supplementary tables for December 1909, and Lists in order of merit of the Senior and Junior Students who obtain the mark of distinction in each subject. 2s. Cambridge University Press.

L.C.C.—Report of the Education Officer, 1908–9: Part I, Elementary Education. 1s. 6d. King.

Libraries of London, The: a Guide for Students. By Reginald Arthur Rye, Goldsmiths' Librarian of the University of London. Second Edition, enlarged, with sixteen illustrations. 2s. 6d. net. Published by the University of London.

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[Comprehensive view of the social and athletic life.]

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Agricultural and Dairy College, The Midland. Practical Bulletins.

Health of the Nations, The. Compiled from Special Reports of the National Councils of Women, prepared by request of the Countess of Aberdeen, President of the International Council of Women. 1s. net. Constable.
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National Ideals. By Leveson Scarth. 1d. National Service League, 72 Victoria Street, S.W.

Oxford Shorthand. Twenty-third Edition. 6d. Swan Sonnenschein.

Physical Culture, Scientific, The Introduction of, into England. By H. Ling Roth, Hon. Curator of Bankfield Museum, Halifax. 3d. F. King & Sons, Halifax.
[No. 9 of Bankfield Museum Notes.]

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HOW WE CATCH SORE THROATS.

REMARKABLE EXPERIMENTS BY A GERMAN SCIENTIST.

Though every one is unpleasantly familiar with the symptoms of Sore Throat—the burning, aching sensation, the pain in speaking or swallowing—how many are aware of the real cause of this complaint?

Like other infectious diseases, such as Diphtheria, Scarlet Fever, Measles, &c., Sore Throat is due to germs—those invisible forms of plant life which we inhale from the air, and which multiply rapidly under the heat and moisture of the mouth cavity, thus setting up disease in the system.

Lately, however, an effectual means has been discovered of destroying these germ growths, and thereby both preventing and curing Sore Throat and other infectious diseases. This discovery is known as Wulfing's Formamint—a pleasant-tasting, harmless tablet which medicates the saliva with an antiseptic so powerful that it soon renders the whole mouth and throat entirely free from bacteria.

Formamint's unique potency as a germ destroyer is vividly illustrated by the accompanying diagrams of experiments made by Dr. Piorkowski, the famous Berlin scientist.

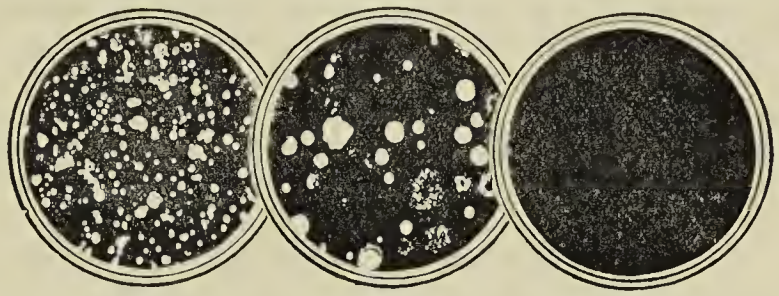


Fig. A. How air germs develop in two days. Fig. B. How dust germs develop in two days. Fig. C. How Formamint prevents any developments of air and dust germs.

Fig. A represents a plate coated with a substance on which germs thrive. It was exposed to the air for a few minutes and kept for two days at the temperature of the human body. The development of the germs is extraordinary. Each white dot represents a "colony" containing thousands of germs.

Fig. B shows a similar plate exposed to fine dust and treated like the other. The dust particles are seen as blurred markings and the germ "colonies" they carried are the white patches.

Fig. C represents a plate, similar to A and B, which was impregnated with human saliva containing Wulfing's Formamint before being exposed to the air. The powerful action of Formamint completely killed the germs which settled on the plate and so prevented them from multiplying; *hence there are no growths at all on the plate.* These illustrations, by the way, are exactly reproduced from a photograph of the plates highly magnified.

There is abundant medical evidence in proof of the claims which are made for Formamint. "Having tried all the British Pharmacopœia lozenges," writes a physician in the *Practitioner*, "and most of the proprietary antiseptic lozenges, I have become reduced to one and one only (for Sore Throat)—namely, Formamint."

"I have never had Sore Throat myself since I began to use Wulfing's Formamint, although I suffered periodically before," writes the Chief Medical Officer of a well-known English hospital. Dr. Conrad Kuhn, Physician to the Court of H.I.M. The Emperor of Austria, writes:—"I have prescribed your excellent Formamint tablets to many patients and always with the very best and promptest results. They have proved themselves surprisingly efficacious in cases of Tonsillitis and bad breath, as well as a reliable preventive, especially in connection with Tonsillitis."

Formamint is sold by all chemists, price 1s. 11d. per bottle, but insist on Wulfing's Formamint and take no other worthless substitutes. Send a postcard, to-day, for a free sample and an interesting booklet by Dr. Andrew Wilson, to A. Wulfing & Co., 12 Chenies Street, London, W.C., mentioning *Educational Times.*
[Advt.

MATHEMATICS.

16582. (Professor SANJÁNA, M.A.)—If $C_2, C_3, C_4, \ldots$ denote the sums of the products taken 2, 3, 4, ... at a time of the quantities

$$\cos(\theta+2\pi/n),\ \cos(\theta+4\pi/n),\ \ldots,\ \cos[\theta+(2n-2)\pi/n],$$

prove that

$$(-2)^2 C_2 \sin\theta = \sin 3\theta-(n-1)\sin\theta,\ (-2)^3 C_3 \sin\theta = \sin 4\theta-(n-2)\sin 2\theta,$$
$$(-2)^4 C_4 \sin\theta = \sin 5\theta-(n-3)\sin 3\theta+\tfrac{1}{2}(n-1)(n-4)\sin\theta,$$
$$(-2)^5 C_5 \sin\theta = \sin 6\theta-(n-4)\sin 4\theta+\tfrac{1}{2}(n-2)(n-5)\sin 2\theta,\ \ldots.$$

Solution by S. RAMANUJAN.

$$\frac{x^n+1/x^n-2\cos n\theta}{x+1/x-2\cos\theta} = [(x+1/x)-2\cos(\theta+2\pi/n)]$$
$$[(x+1/x)-2\cos(\theta+4\pi/n)]\ \ldots \text{ to } n-1 \text{ factors.}$$

Let $x = [1-\sqrt{(1-4y^2)}]/2y$, and consequently $x+1/x = 1/y$. Then

$$1/y^{n-1}[1-2y\cos(\theta+2\pi/n)][1-2y\cos(\theta+4\pi/n)]\ \ldots$$
$$= x(x^n+1/x^n-2\cos n\theta)[(\sin\theta+x\sin 2\theta+x^2\sin 3\theta+\ldots)/\sin\theta];$$

therefore $\sin\theta\{1-2yc_1+4y^2c_2+8y^3c_3+\ldots\}$

$$= y^{n-1}\left[\{[1+\sqrt{(1-4y^2)}]/2y\}^n+\{[1-\sqrt{(1-y^2)}]/2y\}^n-2\cos n\theta\right]$$
$$\times(x\sin\theta+x^2\sin 2\theta+x^3\sin 3\theta+\ldots).$$

Since $y, y^2, y^3, \ldots$ appear only in

$$1/y\left\{\tfrac{1}{2}[1+\sqrt{(1-4y^2)}]\right\}^n(x\sin\theta+x^2\sin 2\theta+\ldots),$$

$(-2)^r C_r \sin\theta$ is the coefficient of y^r in

$$\left\{\tfrac{1}{2}[1+\sqrt{(1-4y^2)}]\right\}^{n-1}\sin\theta+y\left\{\tfrac{1}{2}[1+\sqrt{(1-4y^2)}]\right\}^{n-2}\sin 2\theta$$
$$+y^2\left\{\tfrac{1}{2}[1+\sqrt{(1-4y^2)}]\right\}^{n-3}\sin 3\theta+\ldots.$$

The coefficients of y and its powers are known from the expansion

$$\left\{\tfrac{1}{2}[1+\sqrt{(1-4y^2)}]\right\}^n = 1-(n/1!)y^2+[n(n-3)]/2!\,y^4$$
$$-[n(n-4)(n-5)]/3!\,y^6+\ldots;$$

therefore $(-2)^r C_r \sin\theta$

$$= \sin(r+1)\theta-[(n-r+1)/1!]\sin(r-1)\theta$$
$$+[(n-r)(n-r+3)/2!]\sin(r-3)\theta$$
$$-[(n-r)(n-r+1)(n-r+5)/3!]\sin(r-5)\theta$$
$$+[(n-r)(n-r+1)(n-r+2)(n-r+7)/4!]\sin(r-7)\theta-\ldots,$$

to $\frac{1}{2}(r+1)$ or $\frac{1}{2}(r+2)$ terms according as r is odd or even.

16826. (C. M. ROSS, B.A.)—If $u = x_1^2x_2^2x_3^2\ldots x_n^2$, prove that the value of the Hessian $H(u)$ is $(-)^{n-1}2^n(2n-1)(x_1x_2x_3\ldots)^{2n-2}$.

Note.—2^{n+1} in the last line of the question as originally set was an error.—PROPOSER.

Solution by A. M. NESBITT, M.A.

Since
$$\frac{d^2u}{dx^2} = \frac{2u}{x^2}\ \frac{d^2u}{dx\,dy} = \frac{4u}{xy}$$

(x, y being any different pair of the x's), we have

$$H(u)/u^{n-1} = \begin{vmatrix} 2, & 4, & 4, & \ldots & 4 \\ 4, & 2, & 4, & \ldots & 4 \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ 4, & 4, & 4, & \ldots & 2 \end{vmatrix} = 2^n\Delta,$$

where Δ is a determinant having each element of every row $= 2$, except those in principal diagonal, which are $= 1$. The desired result is now obvious.

The following form of the solution is due to the PROPOSER:—

$$u = x_1^2x_2^2x_3^2 = x_n^2.$$

Here
$$\frac{\partial^2 u}{\partial x_1\,\partial x_1} = 2x_2^2x_3^2\ldots x_n^2 = \frac{2u}{x_1^2},$$
$$\frac{\partial^2 u}{\partial x_1\,\partial x_2} = 4x_1x_2x_3^2\ldots x_n^2 = \frac{4u}{x_1x_2},\ \ldots.$$

Hence the Hessian is

$$H(u) = \begin{vmatrix} \frac{2u}{x_1^2}, & \frac{4u}{x_1x_2}, & \frac{4u}{x_1x_3}, & \ldots & \frac{4u}{x_1x_n} \\ \frac{4u}{x_2x_1}, & \frac{2u}{x_2^2}, & \frac{4u}{x_2x_3}, & \ldots & \frac{4u}{x_2x_n} \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ \frac{4u}{x_nx_1}, & \frac{4u}{x_nx_2}, & \frac{4u}{x_nx_3}, & \ldots & \frac{2u}{x_n^2} \end{vmatrix}$$

$$= 2^nu^n/x_1^2x_2^2\ldots x_n^2 \begin{vmatrix} 1, & 2, & 2, & \ldots & 2 \\ 2, & 1, & 2, & \ldots & 2 \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ 2, & 2, & 2, & \ldots & 2 \\ 2, & 2, & 2, & \ldots & 1 \end{vmatrix}$$

$$= (2n-1)\,2^nu^{n-1} \begin{vmatrix} 1, & 1, & 1, & \ldots & 1 \\ 2, & 1, & 2, & \ldots & 2 \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ 2, & 2, & 2, & \ldots & 1 \end{vmatrix} \text{ (by adding the rows)}$$

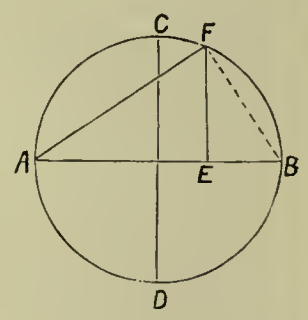
$$= (2n-1)\,2^nu^{n-1} \begin{vmatrix} 1, & 0, & 0, & \ldots & 0 \\ 2, & -1, & 0, & \ldots & 0 \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ 2, & 0, & 0, & \ldots & -1 \end{vmatrix} \text{ (by subtracting the first column from each of the others)}$$

$$= (2n-1)\,2^nu^{n-1}(-1)^{n-1}$$
$$= (-1)^{n-1}2^n(2n-1)(x_1x_2\ldots x_n)^{2n-2}.$$

Note on Squaring the Circle.

By J. JEFFARES.

The following method of squaring the circle may be interesting, assuming that it is possible to measure off a straight line equal to an arc of a circle by a Whitworth machine.



Let AB, CD be two diameters of a circle at right angles; measure off

$$AE = \text{arc } AC = \tfrac{1}{4}2\pi r = \tfrac{1}{2}\pi r,$$

where $AB = 2r$.

Draw EF perpendicular to AB, meeting circumference in F; join AF, BF. Then

$$AF^2 = AE^2+EF^2 = (\tfrac{1}{2}\pi r)^2+AE,\ EB$$

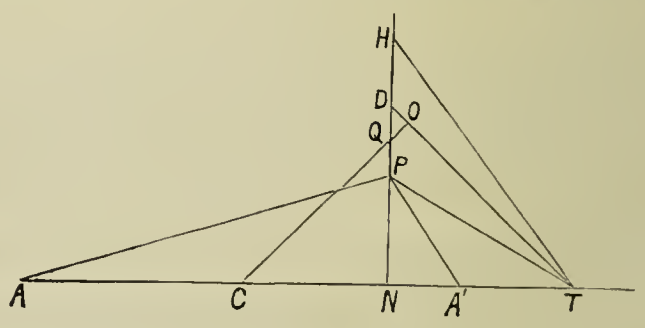
[since $\angle AFB$ is right (Euclid VI, 8, 17)]

$$= (\tfrac{1}{2}\pi r)^2+\tfrac{1}{2}\pi r\,(2r-\tfrac{1}{2}\pi r)$$
$$= \tfrac{1}{4}\pi^2r^2+\pi r^2-\tfrac{1}{4}\pi^2r^2 = \pi r^2.$$

16742. (Professor NEUBERG.)—On considère les hyperboles équilatères qui passent par les extrémités du grand axe d'une ellipse et touchent cette courbe. Trouver le lieu des centres.

Solutions (I) *by* W. F. BEARD, M.A.; (II) *by* R. IATA; (III) *by* A. H. S. GILLSON.

(I) Let AA' $(=2a)$ be the major axis of the ellipse, C its centre, P any point on it. Let PT, PN be the tangent and ordinate at P. Let H be the orthocentre of the triangle APA'. Bisect PH at D. Let O be the



centre of the rectangular hyperbola through APA' touching PT, and let CO meet PN at Q.

$\{AA', NT\} = -1$, and TP is a tangent to the rectangular hyperbola; therefore PN is the polar of T and H must be on the rectangular hyperbola;

therefore TH touches the hyperbola at H; therefore TO must bisect PH; therefore O lies on DT.

Also O lies on the nine-point circle of APA', and CD is a diameter of this circle;

therefore $\angle DOC = 90° = \angle PNT$; therefore Q, O, T, N are on a circle;

therefore $CQ.CO = CN.CT = a^2$ ..... (i).

Let $2b$ be the minor axis of the ellipse;

therefore $PN^2/b^2 = AN.A'N/a^2 = PN.HN/a^2$;

because H is the orthocentre of APA'

$$= [PN(PN+HN)]/(a^2+b^2) = (2PN.DN)/(a^2+b^2);$$

therefore $HN/DN = 2a^2/(a^2+b^2)$.

Again: because Q is the orthocentre of the triangle CDT;

therefore $QN.DN = CN.NT = CN.CT-CN^2 = a^2-CN^2$
$= AN.A'N = PN.HN$;

therefore $QN/PN = HN/DN = 2a^2/(a^2+b^2)$;

therefore the locus of Q is an ellipse, and the locus of O is the inverse of this ellipse with respect to the auxiliary circle from (i).

N.B.—We may fairly prove that QA, QA' touch the rectangular hyperbola.

(II) Let the ellipse be $ax^2+by^2-1=0$.

Any tangent to it has for its equation $y=mx+c$,

where $c^2=(a+bm^2)/ab$ ..... (1).

The equation of any conic touching the ellipse and passing through the extremities of the major axis is

$$ax^2+by^2-1-\lambda y(y-mx-c)=0 \text{ .....(2).}$$

This will represent an equilateral hyperbola if

$$a+b-\lambda=0 \text{ ..... (3).}$$

The co-ordinates of the centre of (2) are given by the equations

$$2ax+m\lambda y=0,\quad 2(b-\lambda)y+m\lambda x+\lambda c=0;$$

that is, $x=-mc\lambda^2/(4a^2+m^2\lambda^2)$, $y=2a\lambda c/(4a^2+m^2\lambda^2$ .....(4, 5).

Eliminating m, λ, c between equations (1), (3), (4), (5), we obtain, for the locus of the centres, the equation

$$4a^2(x^2+y^2)^2=[(a+b)^2/b]y^2+4ax^2.$$

When the equation of the original ellipse is in the form

$$x^2/\alpha^2+y^2/\beta^2-1=0,$$

the above equation may be written

$$(x^2+y^2)^2=1/4\beta^2(\alpha^2+\beta^2)^2y^2+\alpha^2x^2.$$

[Rest in *Reprint*.]

16459. (Professor E. HERNÁNDEZ.)—Trouver la limite de

$$y=(x/\sin x)^{1/x} \quad \text{pour} \quad x=0.$$

Solutions (I) *by* A. M. NESBITT, M.A.; (II) *by* C. M. ROSS, B.A., *and by* T. K. VENKATARAMAN, M.A.

(I) $\log y \equiv (\log x-\log\sin x)/x$

therefore $\mathrm{Lt}_{x=0}\log y=\mathrm{Lt}_{x=0}(1/x-\cot x)$,

$=\mathrm{Lt}_{x=0}(\sin x-x\cos x)/x=1-1=0$;

therefore $y=1$.

(II) $y=\{x/(x-x^3/3!+x^5/5!\ \dots)\}^{1/x}=\{1/(1-x^2/3!+x^4/5!\ \dots)\}^{1/x}$,

$=\{[1-(x^2/6)(1-x^2/20\ \dots)]^{-1}\}^{1/x}$,

$=\{1+(x^2/6)(1-x^2/20\ \dots)+(x^4/6^2)(1-x^2/20\ \dots)^2\ \dots\}^{1/x}$,

$=1+(1/x.x^2/6)(1-x^2/20\ \dots)$

$+[(1/x).(1/x-1)]/2!.(x^4/6^2)(1-x^2/20\dots)^2+\dots$

$=1$ when $x=0$.

The PROPOSER solves as follows :—

En prenant les logarithmes, on a

$$ly=[l(x/\sin x)]/x,$$

que pour $x=0$ se présente sous la forme 0/0.

En appliquant trois fois de suite la règle de l'Hospital, on trouve que le rapport $[f'''(x)]/[F'''(x)]$ c'est $(x\cos x+\sin x)/(2\cos x-x\sin x)$, que pour $x=0$ c'est aussi égal à 0. Alors on a limite $ly=0$, d'où limite $y=1$ pour $x=0$.

16703. (Professor SANJÁNA, M.A.) — Show that, when $10n+5$ is not a power of 5, $(x^{10n+5}-1)/(x-1)$ has three factors at least, n being a positive integer and $5x$ a perfect square.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

$$10n+5=5(2n+1)=5m \quad (\text{writing } m=2n+1).$$

Let $N_r=(x^r-1)\div(x-1)$,

so that $N_{5m}=(x^{5m}-1)\div(x-1)$,

the given number; and let $N'=(x-1)$.

Now $(x^{5m}-1)$ contains N_{5m}, N_m, N_5, N'.

Hence, dividing by $(x-1)$, N_{5m} contains N_m, N_5.

Hence N_{5m} contains the three factors $N_{5m}\div N_m$, N_m, N_5, provided $m\neq 5^a$, *i.e.*, if $10n+5\neq 5^{a+1}$.

Thus the given number N_{5m} contains three factors independently of the value of x. But, when $x=5\xi^2$, then the two factors $N_{5m}\div N_m$, N_5 are both Quint-Aurifeuillians, and are therefore algebraically resolvable into two factors, say L, M, by formulæ which have been several times quoted in these pages; then

$$N_5=(x^5-1)\div(x-1)=L.M, \qquad \text{where } x=5\xi^2,$$

$$L=P-Q,\quad M=P+Q,\quad P=x^2+3xy+y^2,\quad Q=5\xi(x+y),$$

and the numbers $N_{5m}\div N_m$ can be similarly resolved. Hence, when $x=5\xi^2$ (the given number) N_{5m} contains five factors.

16215. (H. BATEMAN, B.A.)—With a point Q on the circum-circle of a triangle ABC as centre, two conics are described, one to touch the sides of the triangle, the other to pass through the angular points. Prove that they are similar.

Solution by C. E. YOUNGMAN, M.A.

This is true for ellipses, but not always for hyperbolas. It is the converse, partly, of a theorem given in Wolstenholme (Problem 1347): "Two similar conics, one inscribed and the other circumscribed to the triangle of reference, have a common centre; prove that this centre lies either on the circum-circle or on the circle of which the centroid and the centre of perpendiculars are the ends of a diameter." This theorem follows at once from certain results in areals in Problem 1346: the following is an independent verification of it.

Take for axes of coordinates the asymptotes, real or imaginary, of the inscribed conic $xy=1$ .....(1)

Let (a, a^{-1}), (b, b^{-1}), (c, c^{-1}) be the points of contact of the sides; then the equations of these sides are $x+a^2y=2a$, and so on; therefore at A $x:y:2=bc:1:b+c$. And if, for short, we write s, p, t instead of $(a+b+c)$, $(ab+bc+ca)$, and abc, we get, at the centroid G,

$$x:y=[bc(c+a)(a+b)+\ \dots]:[(c+a)(a+b)+\ \dots]=(st+p^2):(s^2+p) \text{ .....(2).}$$

Also it is easily verified that A, B, C lie on the conic

$$(x-py)(sx-ty)+4t=0 \text{ .....(3),}$$

which is concentric with (1). And for the angle ϕ between the asymptotes of (3) we have

$$\tan\phi=\pm\frac{(sp-t)\sin\omega}{s+pt+(sp+t)\cos\omega};$$

so that $\phi=\omega$ requires either

$$s+pt+2t\cos\omega=0 \quad\text{or}\quad s+pt+2sp\cos\omega=0 \text{ .....(4), (5)}$$

Now the equation of the circle ABC is

$$l(x+b^2y-2b)(x+c^2y-2c)+m(\ )(\ )+n(\ )(\ )=0 \text{ .....(6),}$$

where $l+m+n=lb^2c^2+mc^2a^2+na^2b^2=[l(b^2+c^2)+\ \dots]/2\cos\omega$;

hence $l=(b^2-c^2)(a^4-2a^2\cos\omega+1)$ and so on; and we find that the constant term in (6), namely $4(lbc+mca+nab)$, vanishes when

$$(b-c)(c-a)(a-b)(s+pt+2t\cos\omega)=0.$$

Therefore, when (4) holds, Q is concyclic with ABC.

Again, the polar circle of ABC, with centre H, is given by

$$l(x+a^2y-2a)^2+m(\ )^2+n(\ )^2=0 \text{ .....(7),}$$

where $l=(b^2-c^2)(b^2c^2-b^2\cos\omega-c^2\cos\omega+1)$, ...

Hence the equation $x(la+mb+nc)+y(la^3+mb^3+nc^3)=0$ ...

represents a line parallel to the polar of Q with respect to (7), *i.e.* perpendicular to QH. The equation reduces to

$$x[st-1+(s^2-p)\cos\omega]+y[p-t^2+(p^2-st)\cos\omega]=0,$$

and it coincides with (2) if $(sp-t)(s+pt+2sp\cos\omega)=0$.

Therefore, when (5) holds, GH subtends a right angle at Q.

This completes the proof of the proposition, but not of the converse, because conditions (4) and (5), though necessary for the similarity of conics (1) and (3), are not sufficient in the case of hyperbolas. For the hyperbolas are certainly dissimilar when their common centre Q is at H, because then the polar circle (7), which reciprocates A into BC, &c., must change one conic into the other; therefore the asymptotes of one are perpendicular to those of the other, but the four real vertices are collinear. That is what happens when, in the equations above, $s\cos\omega+t=0$ and $p\cos\omega+1=0$; and the result is much the same when $s+t\cos\omega=0=p+\cos\omega$; only then Q is on the circle ABC. Some hint of the cause of such failures as these can be found if we start again with the conics

$$x^2+2xy\cos\omega+my^2=a^2;\qquad mx^2+2xy\cos\omega+y^2=b^2;$$

which are always concentric and similar, for in both

$$e^2(m-\cos^2\omega)=m-1.$$

The condition $\Theta^2=4\Delta\Theta'$ being satisfied requires, after some simplifications, either

$$\frac{b^2}{a^2}=\frac{e^4\sin^2\omega}{1-e^2},\qquad\text{or}\qquad \frac{b^2}{a^2}=\frac{e^4\sin^2\omega}{1-e^2}+4.$$

Hyperbolas cannot come in under the first of these relations; nor under the second unless $e^4\sin^2\omega$ be less than $4(e^2-1)$. This will mean, if $e=\sec\phi$, that $\sin^2\omega$ is less than $\sin^2 2\phi$; that is, the acute angle between corresponding lines of the similar conics must be less than the angle subtended by each conic at its centre: which, however, leaves still unanswered the question: with a given ABC, what positions of Q lead to dissimilar hyperbolas?

16484. (Professor NEUBERG.) — Une sphère est rapportée à trois rayons rectangulaires Ox, Oy, Oz. Un plan tangent quelconque rencontre ces rayons en A, B, C. Trouver l'enveloppe de la sphère passant par les points O, A, B, C.

Solution by JAMES BLAIKIE, M.A., *and others.*

Let $x^2+y^2+z^2=a^2$ be the equation to the given sphere.

The equation to the tangent plane at (x', y', z') is $xx'+yy'+zz'=a^2$.

This plane meets the axes in A, B, C; when

$$OA=a^2/x',\quad OB=a^2/y',\quad OC=a^2/z'.$$

The equation to the sphere O, A, B, C is therefore

$$x^2+y^2+z^2=a^2(x/x'+y/y'+z/z') \text{ .....(1),}$$

where $x'^2+y'^2+z'^2=a^2$ ..... (2).

To obtain the envelope, differentiating (1) and (2), we find

$$x\,dx'/x'^2 + y\,dy'/y'^2 + z\,dz'/z'^2 = 0, \quad x'\,dx' + y'\,dy' + z'\,dz' = 0;$$

whence $$x/x'^3 = y/y'^3 = z/z'^3,$$

and hence $$x'^2/x^{\frac{2}{3}} = y'^2/y^{\frac{2}{3}} = z'^2/z^{\frac{2}{3}} = a^2/(x^{\frac{2}{3}} + y^{\frac{2}{3}} + z^{\frac{2}{3}}) \quad \text{.....(3).}$$

Substituting in (1) the values of x', y', z' given by (3), we obtain the equation to the required envelope

$$x^2 + y^2 + z^2 = a\,(x^{\frac{2}{3}} + y^{\frac{2}{3}} + z^{\frac{2}{3}})^{\frac{3}{2}}.$$

We see from this equation that the envelope meets the sphere of radius a, and with the origin as centre in the six cuspidal points $(\pm a, 0, 0)$, ..., the concentric sphere of radius $2a$ in the twelve points $(\pm a\sqrt{2}, \pm a\sqrt{2}, 0)$, ..., and touches the concentric sphere of radius $3a$ in the eight points $(\pm a\sqrt{3}, \pm a\sqrt{3}, \pm a\sqrt{3})$. No part of the envelope lies inside the first of these spheres or outside the last.

16837. (F. G. W. Brown, B.Sc., L.C.P.)—With respect to any triangle show that the radii of the Brocard, Lemoine, and cosine circles respectively form the sides of a right-angled triangle. If the Brocard radius is equal to the radius of the cosine circle, prove (1) that the Brocard angle is approximately 20·7°, (2) that when the triangle is isosceles its vertical angle is either 24·3° or 114·3°.

Solution by the Proposer.

If β, l, ρ = radii of Brocard, Lemoine, and cosine circles respectively, w = Brocard angle, then from standard formulæ—

$$4\beta^2 = R^2 - 3\rho^2, \quad l = \tfrac{1}{2}R \sec w, \quad \rho = R \tan w \text{.....(1, 2, 3),}$$

$$(a^2 + b^2 + c^2) \tan w = 4\Delta \text{ .....(4);}$$

therefore $$\beta^2 + \rho^2 = \tfrac{1}{4}(R^2 - 3\rho^2) + R^2 \tan^2 w \quad \text{[from (1) and (3)]}$$
$$= \tfrac{1}{4}R^2(1 - 3\tan^2 w) + R^2 \tan^2 w \quad \text{[from (3)]}$$
$$= \tfrac{1}{4}R^2(\tan^2 w + 1) = \tfrac{1}{4}R^2 \sec^2 w = l^2 \text{ [from (2)];}$$

therefore l, β, ρ will form a right-angled triangle, whose hypotenuse is l.

If $\beta = \rho$, therefore $\beta^2 = \frac{1}{4}(R^2 - 3\beta^2)$, from (1), giving $\beta^2 = \frac{1}{7}R^2$; therefore, from (3), $R \tan w = \rho = \beta = 1/\sqrt{7}\,R$; therefore

$$\tan w = 1/\sqrt{7} = 0{\cdot}3780 = \tan 20{\cdot}7°;$$

therefore $$w = 20{\cdot}7° \text{ .....(5).}$$

Again, when the triangle is isosceles, $a = b$; therefore, from (4) and (5), $$\tfrac{1}{7}(2a^2 + c^2)^2 = 16\Delta^2 = 4a^2c^2 - c^4;$$

therefore $$a^4 - 6a^2c^2 + 2c^4 = 0;$$

therefore $$a = c\sqrt{(3 \pm \sqrt{7})} \text{ .....(6).}$$

Now $$\Delta = \tfrac{1}{2}c\sqrt{(a^2 - \tfrac{1}{4}c^2)} = \tfrac{1}{2}ac \sin B;$$

therefore $$\sin B = [\sqrt{(a^2 - \tfrac{1}{4}c^2)}]/a = \tfrac{1}{4}\sqrt{(10 \pm 2\sqrt{7})} \quad \text{[from (6)]}$$
$$= 0{\cdot}9776 \text{ or } 0{\cdot}5425$$
$$= \sin 77°.51' \text{ or } \sin 32°.51';$$

therefore $$A = B = 77°.51' \text{ or } 32°.51'$$

therefore vertical angle $C = 24{\cdot}3°$ or $114{\cdot}3°$.

16807. (D. Edwardes, B.A.)—If $\alpha + \beta + 1 > \gamma > \beta > 0$, prove that

$$\int_0^1\!\!\int_0^1 x^{\beta-1}(1-x)^{\gamma-\beta-1}(1-y)^{\alpha+\beta-\gamma}(1-xy)^{-\alpha}\,dx\,dy$$
$$= \frac{\Gamma(\beta)\,\Gamma(\gamma-\beta)}{(\alpha-\gamma+1)(\beta-\gamma+1)\,\Gamma(\gamma-1)}\left\{\frac{\Gamma(\gamma-1)\,\Gamma(\alpha+\beta-\gamma+1)}{\Gamma(\alpha)\,\Gamma(\beta)} - 1\right\}.$$

Solution by G. N. Watson, B.A.

The integral is equal to

$$\int_0^1 \frac{\Gamma(\beta)\,\Gamma(\gamma-\beta)}{\Gamma(\gamma)}(1-y)^{\alpha+\beta-\gamma}\,F(\alpha, \beta;\ \gamma, y)\,dy$$
$$= \int_0^1 \frac{\Gamma(\beta)\,\Gamma(\gamma-\beta)}{\Gamma(\gamma)}\,F(\gamma-\alpha, \gamma-\beta;\ \gamma;\ y)\,dy.$$

Since $$\frac{d}{dy}F(\alpha', \beta';\ \gamma';\ y) = \frac{\alpha'\beta'}{\gamma'}F(\alpha'+1, \beta'+1;\ \gamma'+1, y),$$

the integral

$$= \frac{\Gamma(\beta)\,\Gamma(\gamma-\beta)}{\Gamma(\gamma-1).(\alpha-\gamma+1)(\beta-\gamma+1)}\Big[F(\gamma-\alpha-1, \gamma-\beta-1;\ \gamma-1, y)\Big]_0^1$$
$$= \frac{\Gamma(\beta)\,\Gamma(\gamma-\beta)}{\Gamma(\gamma-1).(\alpha-\gamma+1)(\beta-\gamma+1)}\left[\frac{\Gamma(\gamma-1)\,\Gamma(\alpha+\beta-\gamma+1)}{\Gamma(\alpha)\,\Gamma(\beta)} - 1\right],$$

using Gauss's theorem for the sum of a hypergeometric series whose argument is unity.

QUESTIONS FOR SOLUTION.

16836. (Professor Neuberg. *Correction.*)—Des coniques de même excentricité c/a ont un foyer commun F et même tangente t. Démontrer que le lieu du second foyer F′ est une circonférence et que les deux directrices enveloppent des coniques. Si les coniques passent par un point commun M, le lieu de F′ et une podaire de circonférence et les deux directrices enveloppent des circonférences.

16860. (Percy L. Marks.)—In the game of cribbage, the highest score possible at one display is 29, obtained by three fives and a knave, with a turn-up of the fourth five, which must be of the same suit as the knave. What are the chances, when twelve games are played each evening for six nights in each week during a period of one year that the show of 29 will be obtained once (*a*) by either of the two opponents, (*b*) by each of the two opponents?

16861. ("Chemist.")—Integrate $dx/dt = k_2(A-x)(B-y)^2$, where $k_1(y-x) = (B-y)(2x-y)$ and k_1, k_2, A, B are constants.

16862. (Professor J. C. Swaminarayan, M.A.)—Show that

$$\int \tan^{-1}(z^2-1)\,dz = z\tan^{-1}(z^2-1) - \frac{\sqrt{(\sqrt{2}+1)}}{\sqrt{2}}\sin^{-1}\frac{\sqrt{2}\sqrt{(\sqrt{2}-1)}\,z}{\sqrt{[(z^2-1)^2+1]}}$$
$$+ \frac{\sqrt{(\sqrt{2}-1)}}{\sqrt{2}}\sinh^{-1}\frac{\sqrt{2}\sqrt{(\sqrt{2}+1)}\,z}{\sqrt{[(z^2-1)^2+1]}}.$$

16863. (Professor Escott.)—In Pascal's Triangle,

1	1	1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8	9	
1	3	6	10	15	21	28	36		
1	4	10	20	35	56	84			
1	5	15	35	70	126				
1	6	21	56	126					
1	7	28	84						
1	8	36							
1	9								
1									

prove that the determinant of the n-th order, formed by taking the first n terms from any n consecutive rows, has the value unity.

16864. (Lt.-Col. Allan Cunningham, R.E.)—If

$$N = f(x, y) = ax^4 + 4ax^3y + kx^2y^2 + 4axy^3 + ay^4,$$

show that there is an infinite series of solutions in integers (x, y, x', y') satisfying the equation $N = f(x, y) = f(x', y')$ for all values of the ratio $a : k$. Show also that, if $(k+10a)/(k-6a) = \square$ (integer or fractional), then N is algebraically resolvable into two co-factors. Give some examples.

16865. (J. K. Heydon.)—Show that $a^{2p-1}b^{2q-1}c^{2r-1}\ldots$ (a, b, c, ... being different odd primes) can be expressed as the sum of two squares in $2^{p+q+r\ldots-1}$ ways or none.

16866. (C. M. Ross, B.A.)—If

$$p = x(y^3 - z^3), \quad q = y(z^3 - x^3), \quad r = z(x^3 - y^3);$$

prove that $xyz\Sigma p^3 = pqr\Sigma x^3$.

16867. (M. T. Naraniengar, M.A.)—If

$$S_n = \frac{x^{n-1}}{(n-1)!} + \frac{1}{2^2}\,\frac{x^{n-3}}{(n-3)!} + \frac{1}{2^2.4^2}\,\frac{x^{n-5}}{(n-5)!} + \ldots,$$

prove that $$(n+1)^2 S_{n+2} = x(2n+1)S_{n+1} + (1-x^2)S_n.$$

16868. (Professor Sanjána, M.A. Extension of Question 16640.)—Prove that

$$\Sigma_x^{n+1} 1/r^p = \frac{1}{(p-1)\,n^{p-1}} - \frac{1}{2.n^p} + \frac{p}{2}\,\frac{B_1}{n^{p+1}}$$
$$- \frac{p(p+1)(p+2)}{2.3.4}\,\frac{B_3}{n^{p+3}} + \frac{p(p+1)(p+2)(p+3)(p+4)}{2.3.4.5.6}\,\frac{B_5}{n^{p+5}}, \ldots.$$

16869. (M. T. Naraniengar, M.A.)—In the cardioide

$$r = a(1 + \cos\theta),$$

show that the locus of the intersection of tangents at the points α, 2α is a circle. Interpret the result geometrically.

16870. (C. E. Youngman, M.A.)—A circle and a rectangular hyperbola pass each through the centre of the other; the circle is fixed and the hyperbola varies, its axes revolving three quarters as fast as its centre. Prove that its envelope is a cardioide, which it touches three times, and that its diameters drawn to the points of contact touch the same cardioide. Also its foci trace a rectangular limaçon.

16871. (Professor Neuberg.)—D'un point M de la parabole $y^2 = 2px$ on abaisse les perpendiculaires MP, MQ sur les axes de coordonnées Ox, Oy. Trouver l'enveloppe des ellipses qui ont pour centre O, pour sommets les points P, Q.

16872. (W. F. Beard, M.A.)—A parabola, focus O, is described to touch the sides of a triangle ABC at U, V, W ; AU, BV, CW meet at Q. Prove that QO passes through the point P of Question 16599.

16873. (R. F. Davis, M.A.)—The bisector of the angle A meets the circle circumscribing the triangle ABC in the point D. If U, V are the orthocentres of the triangles ABD, ACD respectively, prove that UV is equal and parallel to BC.

16874. (Major C. H. Chepmell, late R.A.)—Given two sides of unequal length (r and s, $r > s$, $s \not< \frac{1}{3}r$), construct, by ruler and compasses, a triangle which shall have the angle included between the two given sides four times the angle opposite the lesser.

16875. (Professor E. Hernández.)—Dans tout triangle on a

(1) $\frac{1}{2}(a+b+c)(ab+bc+ca) = \frac{1}{2}(a^2+b^2+c^2) + ar_br_c + br_cr_a + cr_ar_b$,

(2) $a(rr_a+r_br_c) + b(rr_b+r_cr_a) + c(rr_c+r_ar_b) = 3abc$,

r_a étant le rayon du cercle ex-inscrit qui touche directement le côté a et de même pour r_b et r_c.

16876. (W. Gallatly, M.A.)—Assume that the power of the Feuerbach point F for the circum-circle O,

$$= \tfrac{1}{4}.\Sigma a^3(a-b)(a-c)/\Sigma a(a-b)(a-c) ;$$

and that OI is parallel to the Simson line of F in the Nine-Point. Then prove that, if ρ be the radius of the circle cutting orthogonally the circum-circle O, the in-circle I, and the nine-point circle N,

$$\rho = \tfrac{1}{4}.\Sigma a^3(a-b)(a-c)/\Sigma a^3(b-c).$$

16877. (J. H. M.)—If a, a' ; b, b' ; c, c' are pairs of opposite edges of a tetrahedron, show that angles λ, μ, ν can be found, so that

$$aa' : bb' : cc' = \sin\lambda : \sin\mu : \sin\nu,$$
$$aa' + bb'\cos\nu + cc'\cos\mu = 0,$$
$$aa'\cos\nu + bb' + cc'\cos\lambda = 0,$$
$$aa'\cos\mu + bb'\cos\lambda + cc' = 0,$$

and find the geometrical meanings of λ, μ, ν.

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13209. (Rev. Dr. Batteson Wright.)—To draw an angle of 10° geometrically.

13226. (Professor Morley.)—Calculate to the nearest inch the distance gone by a pedal of a bicycle while the bicycle goes a mile ; taking the diameter of either wheel to be 28 inches ; the length of the pedal crank to be 6 inches, and the gear to be 63 ; and supposing the pedal to be initially at its lowest point and the bicycle to travel in a vertical plane along a straight line.

13227. (Professor Mukhopâdhyay.)—Three straight rods of equal length and mass lie on a smooth horizontal table, the middle one being smoothly jointed to the other two. Equal velocities in parallel directions are then impressed on the free extremities of the rods. Show that, if the system begins to move as a rigid body, the cotangents of the angles the rods make with the direction of the velocities of the extremities will be in arithmetical progression.

13260. (Professor Balitrand.)—Étudier le complexe formé par les droites dont la somme des carrés des distances à deux points fixes est constante.

13354. (Professor Matz.)—The m-th root of the n-th power of an integral number is a perfect p-th. What is the number ?

13366. (I. Arnold.)—There are two towns lying N. and S. of each other, and distant from each other $2\frac{1}{4}$ miles. Their angles of depression as observed from a balloon are 45° and 60°, and after the balloon has proceeded horizontally 6 miles in a S.E. direction, the angles of depression of each are exactly half of what they were before. Show how the perpendicular height of balloon is ascertained, and its height.

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CONTENTS.

	Page
Leader: King Edward VII—and Education	219
Notes	220
The State and the Private Schools—Tests of Fitness for University studies—Comparative values of subjects—Importance of the element of difficulty—The National Home-Reading Union—The National Industrial Education League—The Philological Society.	
Summary of the Month	222
Universities and Colleges	224
Cambridge—Oxford—Oxford Tutorial Classes—Liverpool—Wales—University Colleges—Edinburgh—Transvaal.	
Children of the Land: Rural Education and Rural Occupations in Canada—"The Macdonald Movement"	226
The Educational Ladder	227
The College of Preceptors:	
Meeting of the Council	228
Practical Examination for Certificates of Ability to Teach (May)	228
Conférences Françaises: L'Académie Française, par A. H. Bernaardt	228
The Training of Teachers: Selection of Junior Students	229
Boy Labour and Unemployment	230
Current Events	233
Fixtures — Honours — Endowments and Benefactions — Scholarships and Prizes — Appointments and Vacancies — Literary — General.	
School Recognition in England in the light of foreign practice: Lecture at the College of Preceptors by J. S. Thornton, B.A.	236
Reviews	239
A History of Secondary Education in Scotland (Strong)—Scottish Education (Kerr)—The Book of Nature Study (Farmer)—A Constitutional History of England (Chambers).	
General Notices	242
First Glances	246
Mathematics	247

The Educational Times.

King Edward.

"THE KING is gone" . . . The death of the King is a national sorrow, universal and sincere; and it has awakened genuine and appreciative sympathy throughout the civilized world, for he had the touch of nature that makes all the world kin. He was every inch a King: he devoted himself unreservedly and strenuously to the duties of his great office, and he discharged them with royal dignity and with the sure tact and grace that spring from wide sympathies and good feeling and sterling common sense. By absolute recognition of the modern constitutional limitations of the Kingship, he settled the Throne more securely than ever upon the broad basis of the people's will. As "L'Oncle de l'Europe," he was able to exercise a personal influence that told indirectly upon political situations; but it may be taken as quite certain that he always carefully refrained from overstepping or straining the bounds of strictly constitutional action. The name of "Peacemaker," though very restricted as a characteristic designation, at least testifies to his unerring sense of "the greatest of British interests." But King Edward was eminently human: he manifested a keen interest in the most diverse aspects of the national life, and he surprised and delighted foreign nations with the catholicity of his intelligent appreciation of their ways and of their modes of thought — a French correspondent of our own writes sorrowfully of "*notre* bon roi Edouard." His unaffected simplicity and geniality, his uniform courtesy, his ready consideration and kindness, were unfailing; and they unfailingly evoked the natural response. The sincerity of the national mourning is a certain index to the deep popular instinct of the magnitude of the nation's loss. "It is not too much to say," with Lord Rosebery, "that our late King, in view of the character and weight that he had established in the counsels of the nations, in view of the efforts that he was constantly making for the promotion of peace, and in view of the sympathy by which he was enabled to knit together nations other than his own, was one of the greatest agencies for good existing in the world."

England ne'er lost a King of so much worth.

We would respectfully join in the universal and profound condolence with the "poor broken heart" of the widowed Queen. And we greatly hope and trust that King George will courageously and successfully cope with the manifold and grave responsibilities to which he succeeds, emulating sedulously the speaking example of his illustrious father.

The cause of Education, which touches so nearly the welfare of the people and the greatness of the nation, lay near to the heart of the late King Edward. The mind naturally goes back to the preceding Edward, whose name is associated with the secondary schools more closely than any other in the revival of learning; but for the late King there may be claimed a more intimate personal interest and influence in the educational revival of his own period. He was well acquainted with the organization and with the effects of education in the countries of the Continent as well as within the three kingdoms at home; and nobody understood better than he did the significance of the educational movement in Germany. His encouragement of the new Universities was much more than a mere official act of duty; behind it lay a profound conviction of the importance of waking up to a larger conception of the national needs. "Why did he work so hard and do all he could to promote the education of the country?" asked Lord Derby, at Liverpool University. "It was," Lord Derby replied, "because he felt it was his duty as Head of the State to do what he saw was absolutely necessary if we were to keep in the forefront of our competitors, and that was to secure an ever increasing education of the people over whom he had been called to rule." What the King said on the occasion of laying the foundation stone of the new buildings of the Royal College of Science, Ireland, six years ago, may be accepted as typical of his wise outlook as well as of his personal interest:

In these days scientific training is an indispensable condition of success in commercial and industrial life. To be thoroughly effective, it requires all the help which research and modern appliances can give. You are, therefore, wise in providing the improved equipment and the widened opportunity for instruction which this College will henceforth supply.

You have told me that the efforts of your department to extend scientific education among the people have been supported by popular sympathy and by the co-operation of representative public bodies. I am glad to receive this assurance; for without such sympathy and co-operation any scheme of technical instruction, however well devised, must fail to come into close touch with the life of the people, and must fall short of complete success. I agree with you in thinking that a complete system of education is necessary for the full realization of your aims; and my best wishes go with your efforts to improve the intellectual and material conditions of the country.

The ideas are simple and common; but the mere fact that the King adopted them gives them uncommon weight; and, indeed, when carefully considered, they are seen to carry far-reaching implications. If the King's educational interest was most openly and emphatically shown in connexion with the new Universities, he exhibited in speeches at various public schools an enlightened understanding of the importance of secondary education, and it is no secret that he was intensely eager to relieve the religious difficulties in the way of elementary education. During the struggle over the Bill of 1902 he is said to have requisitioned a subordinate member of the Government to supplement the concise report from the Treasury Bench with a full account of the daily progress of the measure. The indirect influence of his support was naturally immense. It needs a considerable sum of money to set up half-a-dozen Universities in a decade; and, as Lord Derby has said, "while there are tens of thousands that will work willingly and cheerfully on behalf of education for education's sake, there are many times that number that will work for it when they know that it is the desire of the Head of the State that the education of this country should be in the forefront of our life."

Nor was the King's interest confined to the literary and technical aspects of education. Mr. Lionel Cust, speaking at the annual meeting of the Art for Schools Association, stated that on more than one occasion he had known the King give attention to very minute details, "even to such questions as the objects of the Art for Schools Association —namely, to educate the taste of children by placing in the classroom of elementary schools a few good prints and photographs of beautiful and interesting works of art. When, a year or two ago, his Majesty was asked to extend his patronage to the Royal Drawing Society, he acceded to the request only after examining most carefully into the working of the Society." In like manner, Sir Frederick Bridge has testified that the King was "a great lover of music and a great promoter of music; and nothing greater has been done for musical progress in this country than the efforts he successfully made to found the Royal College of Music, which has afforded great opportunities for young English musicians."

The fact emerges that King Edward discovered vast fields for the beneficent exercise of the Royal influence within the bounds of constitutional limitations, and developed unrecognized powers of usefulness in fostering the internal progress of the nation. He identified himself with his people; he stooped to conquer. He has left a striking lesson to the other potentates of the world, could they but read it and practise it. To his successor he has left no greater legacy than his example in the promotion of the arts of peace, and notably in zeal for the advancement of all branches of the fundamental cause of education.

NOTES.

There are two points in Mr. Thornton's commendably outspoken address to the members of the College of Preceptors (which we publish in full in later columns of our present issue) that challenge serious attention: first, his ruthless disentanglement of the ecclesiastical and educational arguments, and, second, his confident statement and enforcement of a principle that has never been clearly apprehended or frankly discussed in our educational conflicts. He quotes Dr. Clifford as saying that "the Anglican and Roman Catholic schools are in effect 'private schools,' and they are taking more of the money of the citizen as citizen every year, and securing at the same time more control," and that, "while these conditions last, more financial aid to 'private schools' simply means increased Church rates." "It is not the school that is supported," Mr. Thornton replies, "but the parent through the school." Besides, such schools earn the money fully and honestly, otherwise it would not be paid; and nobody has a right to inquire what the payee does with it. The argument is not educational, but ecclesiastical: it is but a first step towards the suppression of disliked religious opinion, at all risks to education. The principle advocated by Mr. Thornton may be stated in his own words:

The only real question that the State needs to ask in determining whether some part, some large part, of educational work shall be devolved on schools with independent management is whether the work can be better done in that way; whether such a way leads to freshness of treatment, to ready adaptation to changing needs, to new and ingenious ways of reaching the ends desired.

He adds that "the evidence of this—at any rate, to those who have any knowledge of the history of education—is simply overwhelming." Of course, it is. But is not his statement of the principle much too generous? We must, for practical purposes, take it that private schools are entitled to equal treatment, not only when their work is done better, but when it is done not less well, than in State schools. Great mischief lies in the ambiguity of the word "control." The principle, as we understand it, means simply this: that the State exercises all necessary "control" when it ascertains to its satisfaction that any particular "private school" is doing efficiently the work that the State expects of it for the State's money. The operation of the principle is patent in the inspection of the University Colleges that receive State money, and in the inspection of "Dreadnoughts" that are paid by State money; but, then, colleges and "Dreadnoughts" are beyond the fatal area of ecclesiastical contention.

In the *Standard* (May 2) Sir Isambard Owen discusses breezily the question of the fitness of students for taking reasonable advantage of a University training. He finds that, "notwithstanding all that has been done since 1902, the development of a public system of intermediate education in England is still in a backward state." Hence serious difficulties harass the makers of Matriculation syllabuses. "The essential questions for University purposes are really only two: Has the candidate the intellectual training necessary to pursue University study at all? Is he sufficiently ad-

vanced in certain branches of study which he intends to pursue to take them up at the point at which the University courses begin? To include more than is requisite for these purposes in a Matriculation Examination is a proceeding of doubtful wisdom." But there is not a little room for differences of opinion in arranging the details for the ascertainment of even these two points. The tendency is to put all subjects on the same footing. Curricula are "more the result of a compromise than of any reasoned intention." The development of character is a great object; but the term "character" is often misapplied. "Character conditions only a portion of the acts of civilized man; probably the greater part of his acts, to say nothing of opinions, tastes, and minor morals, are the outcome of acquired habit." "It is not, however, moral, but intellectual, habits that are our immediate concern here. Education cannot create genius; it cannot add to the faculties of the individual mind; but, if rightly directed, it can add greatly to the effective power of the mind" in different ways, but especially in establishing and fostering "the habit of mental concentration, which is essential to all effectual intellectual work." This is an accomplishment not to be hastily acquired; "the careful training of years may go to its development." Here, then, is "a criterion that may be applied with profit to the merits of educational subjects."

Speaking generally, says Sir Isambard, "that is likely to be educationally the most fruitful which offers to the student the greatest assemblage of difficulties to be overcome." Modern educationists have been too much concerned to smooth the path of the student, forgetting the value of intellectual tonics. "Employers of mental labour have long complained that the young man of the present day has less 'grip' of his work, that he is more a man of routine, and has less initiative when confronted with new conditions than his less favoured precursor." But it is readily possible to overdo difficulties; the wind is to be tempered to the shorn lamb; and Sir Isambard must know very well that such complaints of employers of mental labour require very careful examination, partly as to the basis and the value of the employer's judgment, and partly as to the real share of education in the alleged failure. It is indeed "a question for serious consideration how many of the newer and more attractive subjects which, from time to time, have been brought into the curriculum of the schools, are capable of giving the same rigid intellectual discipline which classical and mathematical studies had been developed to afford." The question has been often debated, but it has not yet got clear of the bias of prejudice; and, in any case, it has to be considered, not only in regard to "rigid intellectual discipline," but also in regard to the particular pupils, their mental equipment, and their future intentions. Anyhow, Sir Isambard concludes that, from the point of view of judging the fitness of a student for University training, "proficiency either in classical or in mathematical and physical studies is likely to be of greater significance than attainments in a subject the learning of which has presented lesser difficulties to be overcome." We are inclined to think that Sir Isambard scarcely realizes the change that has come over "coaches." "The initiated," he says, "know well with how little real knowledge and how very little real training a candidate may pass such an examination who has been 'coached' by a competent expert." Besides, where is the examiner? However, it is well to have such questions discussed by men of position in the educational world.

The appeal of the National Home-Reading Union for a moderately adequate endowment in commemoration of its majority deserves a generous response from all lovers of educational and moral progress. While it lends a strong collateral support to the school, and maintains the interest of young people after leaving school, it assists general readers of ordinary education and little leisure to make the most of such leisure as they have, and it provides special and scholarly courses for readers that are more advanced. It works in co-operation with numerous associations, institutes, clubs, and other societies that are in touch with working people. The Union takes the whole Empire for its province: "Reading circles have been formed, not only in every part of the United Kingdom, but also in Australia, Canada, India, South Africa, and other parts of our dominions beyond the seas." The most hopeful fact of all, however, is that, under the direct approval of the Board of Education (as expressed in repeated Circulars to Education Authorities and instructions to H.M. Inspectors), eight hundred reading circles have been organized in connexion with this Union in the elementary schools of the London County Council, and the same has been done in many elementary schools and evening continuation classes elsewhere. There can be no doubt that the inculcation of the love of wholesome literature on the attractive and sensible methods adopted by the Union constitutes a wide and powerful influence for good—an influence specially desirable with a view "to counteract the trumpery and demoralizing trash which circulates by the ton weekly among the young people of our towns and villages."

Mr. Robert Applegarth is making substantial progress towards the establishment of a National Industrial Education League. He is already able to issue "the most representative list ever published of supporters, including the most trusted leaders of the workers, employers of labour, and many who have for years been, as teachers and writers, assisting in the work of education."

The list includes "sixty-seven members of Parliament; upwards of a hundred Trades and Labour Councils in all parts of the Kingdom, from Inverness to Plymouth and from Kilkenny to Norwich; the Secretary and every member of the Trades Union Congress Committee; the Secretary and many of the Committee of the General Federation of Trades Unions; the Secretary and every member of the Board of Directors of the Co-operative Wholesale Society; the Secretaries and Committees of the Co-operative Union, Co-operative Education Committees' Association, the Co-operative Productive Federation, the Working Men's Club and Institute Union, and a large number of the Workers' Education Association, and of the Secondary Education Association of Scotland. These together represent upwards of 2,500 organized bodies of workpeople engaged in trades union, co-operative, and educational work, and, as far as I can at present ascertain, these represent over three millions of workers. I have received communications expressing the most cordial approval from many of the largest employers of labour in the Kingdom in connexion with shipping, shipbuilding, engineering, and other industries"; and the London Chamber of Commerce resolved (February 18), "That the Council of the Chamber approve, heartily

support, and will give all their assistance to the Proposed National Industrial Education League."

The address issued by Mr. Applegarth as a candidate for the first School Board for London contained this paragraph:

I regard "The Elementary Education Act, 1870," as but the beginning of a great national work. . . . But if our industries are to live and prosper, and England is to hold her own in the markets of the world, the youth of this country must be placed on a footing of equality, with regard to scientific instruction, with those of other countries whose labour is brought into direct competition with our own.

Much has been done since then in various ways; but a definite and strong advance may be expected when the question is brought home, as Mr. Applegarth is bringing it, to the immediate representatives of the associations of working people all over the country.

The Anniversary Meeting of the Philological Society (May 6) was of an unusually interesting character. Dr. F. J. Furnivall, who has for very many years been Secretary of the Society, asked that Prof. Thomas, of Bedford College, might be associated with him in the secretaryship, explaining that his health was precarious. Mr. H. A. Nesbitt, in the chair, gave expression to the sorrow of the Society with tender brevity, and Sir James Murray, joining in the expressions of sympathy, said that in recent years Dr. Furnivall had furnished him with as much fresh matter as all his voluntary readers put together. Sir James, in the paper of the evening, after speaking at some length of many of his *collaborateurs* who had joined the majority, and especially of Mr. James Platt, whose linguistic knowledge he described as more extensive and exact than that of any of his acquaintance, held his hearers spellbound for a period twice as long as that usually assigned to readers of papers with an account of the "Ta" words, and, in particular, of the word "take." This word had proved even more troublesome than "put" (of which he had spoken so felicitously to the Society last year) and filled forty-two columns or thirteen pages. He had found the compound "take up" used in at least forty varying senses. Referring to the difficulty of defining such a simple word as "take," he raised a hearty laugh by suggesting that future lexicographers should preface their works with a list of the words so simple as not to require explanation, and should thus save themselves much trouble.

SUMMARY OF THE MONTH.

The Board of Education have decided not to make any changes for the ensuing educational year in their Regulations for public elementary schools, or for the preliminary education of elementary-school teachers, or for secondary schools, in England. As regards the Code of Regulations for Public Elementary Schools, the requisite formal amendment of the two dates specified in Article 58 (*b*) and the cancellation of Schedule I. E. will be made by minute to be laid on the table of both Houses of Parliament. As regards the Regulations for Secondary Schools, such waivers of Articles 23 and 24, or of Article 18 (*b*), as have already been given, may be continued at the discretion of the Board, and in any case a waiver allowed in respect of the school year 1909–10 will be continued for the school year 1910–11 where no express notice was given that it was limited to the former year. Similarly, schools which have been receiving grant on the lower scale under Article 42 will continue to receive it for the school year 1910–11 if they continue to satisfy the Regulations in other respects. Similarly, Article 38 (*c*) of the same Regulations will be read so as to apply to the school year 1910–11, the date 1909 in the last sentence remaining the same. In continuing for another year this Article, which offers a supplementary grant under certain conditions to schools taking a substantial share in providing education for future elementary-school teachers, as bursars or pupil-teachers, the Board desire to state that they have received many representations urging modifications in the method of providing for the special purpose in question; and, in making any arrangements enabling a school to qualify for this grant, school authorities should bear in mind that it will not necessarily be continued after 1910–11 in its present form.

The Board of Education have issued as a Blue book (Cd. 5147) Statistics of Public Education in England and Wales, Part II., Financial Statistics, 1907–8–9. The chief difference between the present volume and corresponding previous issues consists in the inclusion of statistics of the receipts and expenditure of Local Authorities in respect of education other than elementary, described in the tables as "Higher Education." The tables in which these statistics are given take the place of those formerly published in the annual return relating to the application of funds to higher education by Local Authorities in England and Wales. The present volume also includes a table giving abstracts of the loan accounts of Local Authorities in respect of higher education. The net total expenditure of the Board out of the Parliamentary Vote, after deducting appropriations in aid, was, for 1908–9, £13,484,117, as compared with £13,272,624 in 1907–8 and £13,166,788 in 1906–7. The grants to meet expenditure in respect of elementary education amounted to £11,039,619, as against £11,023,121 in the previous year and £11,248,380 in 1906–7. Building grants in aid of provision of public elementary schools amounted to £21,815, and allowances and pensions to teachers £113,031. Grants for secondary schools amounted to £506,449, as against £342,393 in 1907–8 and £254,210 in 1906–7; for pupil-teacher centres and instruction of pupil-teachers not in centres, £199,387; and for contributions towards local science and art scholarships held in secondary schools, £34,232. Technical institutions, schools of art, day technical classes, art classes, and evening and similar schools and classes absorbed £494,211, maintenance grants for training colleges, &c., £430,340, and building grants for training colleges and hostels (training of teachers for elementary schools), £60,757, the three last-mentioned amounts being all considerably in advance of the expenditure in the same directions in the two previous years.

A White Paper (Cd. 5155) shows that under the Appropriation Acts, 1907, 1908, and 1909, the Board of Education, up to March 31 of the present year, had paid £20,850 in England and £32,520 in Wales in respect of special grants for the building of new public elementary schools.

Mr. Marshall Jackman, President of the National Union of Teachers, speaking at a public meeting at Rochdale (May 6), contended that elementary education was mainly a national charge. He believed that, in the interests of good administration, a local charge was necessary, but this local burden should be much smaller than at present, and much more equitably distributed. Since 1902 the proportion of Imperial aid for elementary education had been growing less, while during the same period Imperial obligations of a very expensive character had been pressed by Parliament on Local Education Authorities The Board of Education Statistical Returns, just published, were most illuminating on this very subject. According to them, in 1907–8, the last year for which returns were presented, the Government grants for elementary education showed a falling off of more than £250,000, while during that same period the rate charged by Local Authorities had increased by £216,000. Two new items of expenditure—for medical inspection and for the provision of meals—would certainly continue and increase. Again, the enforcement of Mr. Runciman's new Codal Regulations with reference to staffing would very largely increase the expenditure for elementary education. Although there were thousands of classes in the charge of unqualified and incompetent teachers, hundreds of college-trained teachers at the present time were out of employment. The Board of Education appear to be helpless to enforce the Staffing Regulations on account of the rate pressure in connexion with education. Mr. Jackman contended that the Chancellor could not more usefully spend some of the Budget surplus than in improving the conditions for the boys and girls in the schools of the country.

The thirteenth annual Conference of the National Association of Head Teachers was opened at Leeds (May 18). Mr. E. S. Mortimer (London) was installed as president, and delivered an address dealing with the improvements due to education. Though primary education was often said to be largely a failure, yet, in spite of the early age at which children left the primary schools to encounter the realities of life, it required but little acquaintance with town life to acknowledge that there was a vast improvement in the conduct of the working classes. Taking a period of thirty years, there was far less quarrelling, drunkenness, and rowdyism, in spite of the fact that there had been physical deterioration, a large increase in the population, and much more time spent out of doors. No doubt there was a period between the ages of fourteen and twenty when many of these young people displayed hooliganism, but they were not so very far removed from the time when the young buck or young blood about town thought it no disgrace to behave in a somewhat similar manner. Hooliganism was, no doubt, due to lack of true education, to restlessness and dissatisfaction, and to want of proper training and resource, and it must be remembered that these offenders were generally in the adolescent stage. This condition was largely due to the decay of the apprenticeship system, to the long hours of uninteresting work, and to the lack of effective supervision at the most critical period of life. It was easy enough to advocate compulsory attendance at evening continuation schools; but, unless this was accompanied by shortened hours of labour, any gain mentally and morally would be at the expense of the physical side. So far as girls were concerned, the situation would probably be met by an extension of the trade schools or classes, together with further educational, domestic, and physical training. The future of the race depended largely on the better and true training of women in domestic and social duties.

Among the subjects of discussion were the training of teachers, the medical inspection of schools, school attendance, the employment of children, and juvenile employment bureaux. On the last-named subject Mrs. Ogilvie Gordon, D.Sc., spoke mainly on organization. In her opinion, the crux of the whole question was that the right to sway the future of boys and girls belonged to the parents, and should not be delegated by the parents to any other public body than the body whose members were nominated and elected by themselves. It was important to note the actual position which the Board of Education had assumed in relation to juvenile employment. By agreement with the Board of Trade a special rule had been made that if any Local Education Authority for higher education had or might acquire statutory powers to conduct such bureaux, it might draft a scheme and submit it to the Education Authority. If approved by that Board, and the Board of Trade was also satisfied, the Labour Exchange in that locality might decide to recognize the Local Education Authority bureau as the bureau for that district. It would clear the air very much if, in the first instance, a Bill were passed in Parliament giving the statutory powers to all Local Education Authorities for higher education. A further step would be for delegates from a number of Education Authorities to meet in special conference and draft a scheme upon broad lines, which they would then present to the Board of Education, and which, if approved, might serve as a model to other authorities. She urged the delegates to bring the question prominently before the Education Authorities under whom they served. Theirs were the hands that guided the ever-active shuttles of the child mind, theirs were the words that would sink deepest into the imagination, to be forgotten, it might be, but to be remembered again as the child passed from stage to stage in life's pathway. A resolution was passed urging upon the Government to give statutory powers to all Local Authorities for bureaux.

The first session of the Annual Conference of the Sunday School Union was held (May 4) at the Old Bailey Lecture Hall, under the presidency of Mr. G. Croydon Marks, M.P. The general subject of discussion was "The Twentieth Century Sunday-school Teacher." In a brief address the chairman said the problem to-day, as in the past days, was how to retain the elder scholars in the school and church. Mr. David Williamson pointed out that most of the Christian workers of to-day were the Sunday-school scholars of twenty or thirty years ago. The need of effective teachers was never so pressing as to-day, and it was of the utmost importance that they should have every facility for perfecting themselves for their work. Many of them had scant opportunity for preparing their lessons; hence there was a necessity for a Bible study class. Miss Miller, of Westminster Chapel, read an interesting paper on Bible study, in which she laid strong emphasis on the study of Biblical geography, and the manners and customs of the East, as an aid to the intelligent interpretation of the Bible. A general discussion followed.

At a meeting of the School Board of Glasgow (May 16) the Rev. Mr. Barr submitted an amended scheme of regulations regarding the emoluments and promotion of teachers in elementary schools under the Board. In regard to second masters they had inserted a clause by which continued excellence in their work would allow them to advance from £200 to a maximum of £250. They also, in future, would give annual consideration to all salaries of all second masters in their service. In regard to the minimum salaries of assistant teachers, in future the £5 that had been given in lieu of graduation would not be given automatically; but the higher minimum would be given for those who had special qualifications, whether they had the degree or not, and whether trained at the normal school or at the University, and would continue to be given for graduation, but only if there was a considerable qualification and suitable and well reported work along with it. Similar conditions obtained in regard to assistant mistresses. In regard to the maximum salary, they had made alterations under which the maximum salary of assistant masters would go up from £150 to £170. They had also made arrangements under which increases beyond £120 might be given assistant mistresses who showed special excellence in their work, and they had readjusted the terms under which infant mistresses might go up to £150. In regard to annual increments, they were agreed to recommend that, in view of the new Government scheme of superannuation promised for 1911, under which all School Boards would pay a sum of at least 2 per cent. of the teachers' salaries, the question of annual increments, in so far as it applied to assistant teachers, be meantime deferred until the provisions of the scheme referred to had been made known, in order that salaries might be adjusted between themselves and other Boards, either by the payment of annual increments or otherwise.

The Japanese educational exhibits in the Japan-British Exhibition are disposed in two sections—the Historical and the Modern. The Historical section shows such objects as are likely to convey to visitors a good idea of the sources and the development of the Japanese civilization and culture—pictures and objects illustrating national characteristics, "Bushido" (the soul of Japan), and the history of schools, libraries, and social education. Old copied and printed books, woodcuts, and types, some of which are more than a thousand years old, are set out in chronological order. To show the assimilation of occidental civilization, several photographs of the historical relics kept by the noble families, &c., are exhibited. The Modern section represents the educational institutions, from kindergarten up to University. Works of the professors and of the students illustrate the progress and the present condition of education in Japan.

At the annual meeting of the Royal Asiatic Society (May 3), Mr. Ameer Ali said he believed it was a matter for consideration, in view of what was now taking place in the East, whether the society should not apply itself to the cultivation of the study of modern Eastern languages by those who went out to the East or who were connected with it. He thought that a knowledge of the principal languages of India would be of the utmost use in bridging over the deplorable gulf now existing between England and sections of the people in India. He believed a good deal of this was owing to the fact that nowadays attention was not paid as much as it used to be to the cultivation by Englishmen of Eastern languages. He thought it would be desirable if the the Royal Asiatic Society would make itself a link between the East and the West by encouraging the cultivation, by English scholars, of those languages which were now acquiring a certain predominance in Eastern countries. Sir Raymond West said that, in consequence of the increased intercourse between England and the remoter East of recent years, and the growing importance of Japan and the great destiny that awaited China, it was important that their literature, customs, and institutions should be made familiar to European statesmen through

European scholars, because it was only through scholars that in the first instance this could be done. Those who could give information on these subjects would be doing a service to their country and acquiring honour for it, and at the same time increase the intercourse of mankind with mankind. He had suggested the establishment of an institute especially intended for the study of Indian and other Eastern languages, which, he believed, would be of inestimable value to the Empire.

There are seventy-three Government and Grant schools in Hong-Kong (says the *Empire Review*), the most important being Queen's College. Twenty-three are upper grade schools and have an average attendance of 3,992; the medium of instruction, with the exception of one girls' school, is English. The fifty remaining schools are lower grade. They comprise one school for British Indians, where English and Urdu are taught, five Government schools and one Grant Anglo-Chinese school, and forty-three Grant Vernacular schools. The average attendance at the lower grade schools is 2,186. The total average daily attendance at both grades of school is 6,178. The revenue derived from school fees is 54,792 dols. (of which 31,073 dols. is from Queen's College), and is rapidly increasing. This is mainly to be accounted for by the increasing numbers of Chinese desirous of an English education. Higher education is represented by the Technical Institute, where instruction is given in the evening in mathematics, machine drawing, building construction, field surveying, and allied subjects; in chemistry and physics; in the English and French languages, book-keeping, and shorthand. There is also a teachers' class, at which the junior Chinese masters of Government schools are expected to attend. The Institute is furnished with a well equipped laboratory. The lecturers are chiefly civil servants recruited from the European staffs of Queen's College and the Public Works Department. These officers receive fees for their services. Hong-Kong is also fortunate in including among its schools two limited to children of British parentage, one for boys, the other for girls. Both these schools are under the Government, and in 1908 the combined average attendance was eighty-seven.

Alderman William Spencer, of Beverley, Yorkshire, who was twice mayor of the town and formerly a school teacher there and at Sowerby Bridge, left about £10,000 out of an estate of £33,237 for charitable and public purposes. He bequeathed about £4,500 to the borough for the upkeep of the public library and about £750 on trust for objects with which he was in sympathy, especially for the benefit of virtuous spinsters and widows over the age of sixty and socially above the ordinary receivers of doles. To his housekeeper he left his house, his household effects, and about £2,000, and to seventeen of his former pupil-teachers £30 each. He also left £100 to the Corporation of Beverley for a yearly distribution of oranges on his birthday among the pupils at the school in the town where he was head master for thirty-nine years.

We regret to announce the death of Dr. W. Gordon Stables, R.N. which took place at his residence at Twyford, Berks, on May 10. As a novelist and traveller, Dr. Gordon Stables' name is known throughout the English-speaking world, but it was as a writer of boys' stories, full of thrilling adventures—many of them based on his own actual experiences—that he achieved his reputation. During the thirty odd years that he wielded the pen, Dr. Gordon Stables wrote no fewer than a hundred and fifty books, a considerable number of which appeared in the form of serials in the "Boys' Own Paper." He wrote also on hygiene, and he was an expert on dogs and poultry. He could also lay claim to being the pioneer of the modern recreation of caravaning. He travelled through England and Scotland, from Land's End to John o' Groat's in the luxuriously fitted "Land Yacht Wanderer," and wrote several descriptions of his tours. He was nearly seventy years of age.

UNIVERSITIES AND COLLEGES.

(*From our own Correspondent.*)

Cambridge. We were all looking forward to an unusually bright and merry May term, but now all is different. Cambridge, which has always been loyal both to the Crown and to the person of the Sovereign, had come to look upon King Edward as a friend and a neighbour. Here he was admired and respected, but never mobbed. It was at one of his last public appearances in Cambridge that the present writer had an opportunity of noticing his tact and kindliness. The King, in saying a few words of greeting to the various officials, showed that he had accurate and sympathetic knowledge of details connected with each; the right thing was said to everybody, and everybody felt better for it. The arrangements for the June festivities were in a somewhat advanced state, and the authorities were prepared to sanction the holding of the various balls. Here, however, the good sense of the undergraduates stepped in, and everything has been definitely abandoned. Trinity, of course, could not hold their ball; the Freemasons had lost the Patron of their society, the Officers' Training Corps their Colonel-in-Chief, and the A.D.C. the most distinguished of their members. Severe money loss has naturally been sustained, but not a word has been uttered on the subject. Memorial services were held here as elsewhere over England; but few, perhaps, could compete in simple dignity with the service in which the University and town together did honour to the memory of the King. The senior members of the Senate assembled in the Senate House, and, as the procession left the South Porch, the Chaplain of King's intoned the Litany, the responses being taken up by the University choir, chiefly consisting of choristers from King's and Trinity. The effect was sombre and striking. Marching round Senate House yard, the Senate entered the church and took their places while the Litany was being brought to a conclusion at the west end of Great St. Mary's. Thousands were unable to obtain admittance to the building, but the crowd was abnormally manageable. Everywhere through the town there was an air of still solemnity, and a hushed, awed silence seemed to pervade the place.

The debate on the scheme for reconstituting the Senate and electoral roll showed a crushing defeat of the reforming party, so far as argument is concerned. The fact that nearly half the Syndicate were unable to sign the vital resolutions made us fully prepared for the admission by the reformers that the scheme is a compromise, and for the denunciations, ably and temperately expressed, of such a well known University Liberal as Prof. Kenny. Every one feels that the members of the Senate who have paid heavy fees for certain privileges will be treated with injustice if those privileges are summarily abolished, and it is universally felt that genuine reform in the interests of the nation, as well as in that of the University, is more likely to come from a body consisting partly of non-residents than from the caucus of permanent officials, to whom it is suggested all University legislation should be referred. Mr. Robb, Mr. Huddleston, Prof. Ridgeway, Mr. R. T. Wright, Mr. Ledbury Taylor, and Mr. Heitland attacked the report from different points of view. Some sort of defence was made by Mr. Parry and Mr. Loeb; but, on the whole, there is a general feeling that, when it comes to the vote, a majority of the residents, the very men into whose hands it is proposed to thrust abnormal powers, will give the whole scheme a satisfactory and deserved quietus, a task in which the non-residents will doubtless assist most heartily.

The Triposes are now upon us—in fact, some are already over. What a farce these new arrangements are! A man "goes in for Part I of a Tripos at the end of his second year"—that is how the book puts it—whereas the facts are that he has resided about 270 days, broken up into five terms, and has to undergo a critical ordeal upon which his whole prospects in life depend exactly at the time most unfavourable to his chances, and, what is more to the point, exactly when others around him are devoting themselves to plucking the blossoms of the fleeting May term. It's the old story—the interests of the permanent staff!

It is announced that a party of German students will spend a week in Cambridge during the Long Vacation. This is a natural sequel to the visit of the judicial officials some two years ago. It is hoped that our guests will enjoy themselves, and give us in return for our hospitality some valuable hints as to how we may best bring our University life into line with modern ideas. Prof. Brent is responsible for the arrangements of the visit, and all is sure to be well done.

The many friends of Dr. Peile, Master of Christ's, will be sorry to hear of his grave and protracted illness; the latest reports are far from encouraging. The venerable Master of Clare, according to the latest accounts, is recovering his wonted health. The Master of Jesus, however, is still a great invalid; he has the sympathy of every one in Cambridge; he won universal regard in the College and outside it by his strenuous life and his absolute devotion to his College.

Ex-President Roosevelt will receive an honorary degree before these notes see the light. He has promised to address the undergraduates at the Union.

The May races promise to be unusually exciting; the three head boats—Jesus, First Trinity, and Trinity Hall—are all above the average. Hall are probably the best, though they are rather weak in the bows; however, they are being coached by the renowned Douglas Stuart, and that counts for much. With such sterling oarsmen as E. S. Hornidge and C. P. Cooke, and an experienced stroke, the crew should make a good bid for the headship, though Rosher, Hellyer and Lloyd will help "First" to keep out of the way.

We shall probably get away from Cambridge earlier than usual this year, as practically all the examinations will be over by June 11, and there is nothing after that to detain us.

THE Financial Board's annual report on the income and expenditure of the University (apart from trust funds) has been published. The ordinary income of the Chest for 1909 (£48,676) is £243 more than in 1908, while the ordinary expenditure (£46,687) shows an increase on the preceding year of nearly £1,200. The net contributions from the colleges, which are arrived at after deductions for Fellowships held by professors and for income-tax, are £730 less. The Board anticipate a net margin of income over expenditure in 1910 of £300, without making any provision for contingencies. The capital account shows an estimated liability of £31,500 for new buildings, of which the most important is the new block of lecture rooms now in course of erection. The Board propose to apply £6,680, which will be available in the course of the year, towards this expenditure, and ask authority to borrow a further sum of £10,000, leaving a balance of about £15,000 to be provided in future years. It is proposed to apply £1,875 towards the provision of pensions.

Oxford.

A STATUTE for regularizing the position of women students in the University was promulgated in Congregation (May 10), the Vice-Chancellor presiding. The University was asked to establish a new "Delegacy for the Supervision of Women Students," which, like the other delegacies, would consist of twenty-one members, to be in this case the Vice-Chancellor and proctors, nine members of Convocation, and nine women. Of the latter, one is to be the principal of the home students, and the other eight are to be elected by an electoral board. The Principal of Brasenose, in introducing the statute, the preamble of which was before the House, said the object of the statute could be summed up in a single word, control—control by the University exercised over the admission of women students to its studies and examinations. It would prevent (1) the establishment of colleges and halls for women students in Oxford without the approval of the University; (2) the institution of lodging-houses and hostels for women students without the approval of the University; and (3) it would secure control, at present somewhat precarious, over home students in Oxford. With regard to the machinery, it might be said they ought not to have a delegacy of the University of which a considerable number of members would not be members of the University. But the University members would always be in a majority.

The President of Corpus (Mr. Thomas Case), in opposing the statute, said that this delegacy would consist of women and their friends, and therefore the University would not have any effective control. He did not believe the so-called arrangements for discipline were at all beyond the existing institutions of the University itself. He maintained that the statute was dangerous to the University and unnecessary, and that machinery could easily be provided by a far simpler and more modest scheme. The Rector of Exeter (Dr. Jackson) supported the preamble. The number of women students had become so large that some such measure was wanted. He objected only to the ambiguity of the statute as regards the powers of the delegacy, and regretted that more general power of control over the education of women had not been given to the delegacy. He also criticized the constitution of the delegacy, and thought that the persons not members of the University should have been put into the position of a Consultative Committee, on the analogy of the University Extension Committee on Tutorial Classes for Working Men. He also objected to the responsibility assumed by the University under this statute for the home students. He thought that the rights of women students to be admitted from any part of the country to University examinations should have been more explicitly and ungrudgingly preserved. On a division, the preamble of the statute was carried by 159 votes to 28.

Oxford Tutorial Classes.

THE Oxford University Tutorial Classes Committee report on the first year's working shows that, during the session 1908–9, classes were conducted at Chesterfield, Glossop, Littleborough, Longton, Oldham, Rochdale, Swindon, and Wrexham, the total number of students registered being 237, of which 216 were men. Over half of the students (60·5 per cent.) were under the age of thirty-four. Nearly all the students as to whom particulars are available were manual workers, 59·1 per cent. being drawn from three groups of trades—engineering, textiles, and building—and the rest being scattered over a large number of different occupations. Many of the students are members of working class organizations, such as trade unions and co-operative societies, as well as political organizations of a predominantly working class character, and several of them take a prominent part in the work of their societies in an official capacity. The attendance and industry of the students were highly satisfactory. Their essays nearly all improved very greatly in the course of the session, while some reached a very high standard indeed, and would bear comparison with those done by First Class students in the Final Honour Schools at Oxford. While the Joint Committee is of opinion that the experience obtained from the eight tutorial classes now in existence is most encouraging, it is met by certain grave difficulties, which spring from the conditions of English educational and industrial organizations. One is the deficiency in previous education, showing the urgent need for bridging the gulf between the elementary schools and manhood. Other difficulties are: too much employment, as represented by overtime, and too little employment, when the student has to withdraw his attention from his class and concentrate it on the serious problem of how to obtain means of livelihood. Unemployment constituted the chief reason for abandonment of the classes. These matters, say the Committee, are of such gravity in their relation to the work of the tutorial classes that they might well form the subject of an investigation by the Board of Education.

Liverpool.

THE Committee appointed by the Council of Liverpool University to consider the course of study and the regulations for the degrees in commercial sciences has now delivered its report. The Committee had the assistance of leading business men of Liverpool in the work of devising a course of study which will be practical, and at the same time of a true University type. A day and an evening course for the commercial degree will be inaugurated within the next few months. Graduates in commerce will, it is anticipated, be offered substantial advantages on entering employment, either in the form of a shorter term of apprenticeship or increased chance of promotion. In order to keep the commercial community of Liverpool interested in this form of University activity, it is proposed that merchants should be appointed to an Advisory Board, so that the educational courses may be prevented from becoming unpractical or useless for commercial purposes.

Wales.

THE University had the special distinction of being the only University in the Empire with which the King was officially associated. On his accession, King Edward ceased to be Chancellor of the University, but intimated that he would become Protector. King George will no doubt follow this example. Prince Edward, however, can hardly assume the Chancellorship owing to his youth and the fact that the post is not a sinecure; and an arrangement must be deferred for a time.

University Colleges.

THE report of the Advisory Committee on Grants to University Colleges, with regard to the disposal of the balance of the grant for 1909–10, and with regard to changes in the list of participating colleges, shows that thirteen colleges are recommended to share in the allocation of the balance of the sum voted for the year 1909–10, in addition to the grants recommended on the same basis as in the two preceding years. The largest additional payment recommended is £2,000 to the Victoria University, Manchester, while University College, London, is to receive £950, and the University of Bristol £700. With a view to the approaching re-allocation of grants to the quinquennium, beginning with the financial year 1910–1911, the Committee had under considera-

tion the question whether any new colleges should be added to the list of those which participate in the Treasury grants. The Chairman of the Committee, therefore, in conjunction with Sir Joseph Larmor, of St. John's College, Cambridge, inspected the Royal Albert Memorial College, Exeter, the East London College, the Birkbeck College, Chancery Lane, and the Hartley College, Southampton, the grant to which was temporarily continued in accordance with the recommendations contained in the report of 1907. The detailed statements of the Inspectors with regard to each of these colleges are given in the report. The Inspectors found themselves unable to recommend Hartley College for a permanent grant, on the ground that it approximates rather to the municipal type of local college, in that it attracts very few students from Hampshire schools with the exception of schools in Southampton itself. The Royal Albert Memorial College, Exeter, also, from the standard of its work, falls within the category of local colleges, and cannot for that reason be recommended. The East London College, on the other hand, may be regarded in the main as satisfying the conditions required by the Treasury, and is therefore to be recommended for a grant on the fulfilment of certain provisions. Birkbeck College fails to receive a grant owing to its close proximity to colleges already recognized, and to the inadequacy of its accommodation and the almost insuperable difficulties in the way of expansion.

Edinburgh.

The annual report on the state of the finances of the University of Edinburgh shows that the capital of the University on August 31, 1909, exclusive of buildings and furnishings, was as follows:—General University fund, £69,343. 13s. 11d.; funds partly or wholly unappropriated to particular purposes, £165,328. 7s. 8d.; funds partly or wholly appropriated to particular purposes other than bursaries, scholarships, fellowships, and prizes, £198,948. 2s. 2d.; funds for bursaries, scholarships, fellowships, and prizes, £377,264. 12s. 9d.; Eskbank Feu duties, causalty fund, £769. 19s.; total, £802,652, 15s. 6d. The market value of the securities held for these funds at the close of the year was £790,794. 9s. 1d., being £11,858. 6s. 5d. decrease on the account value or cost price.

Transvaal.

The session of the Transvaal University College starts in March and finishes in November, with a break of a fortnight between; but early in January of each year the student must engage in some practical work, either on the mines or in the shops, and spend his time at this work till the academic classes commence. His practical work, both in the classes and in the shops, is taken into consideration for the annual terminal examinations and also naturally for the scholarship awards. The introduction of this style of examination marks a very distinct advance, and will, it is hoped, entirely do away with cramming and all its attendant evils. During next term the mining and metallurgical departments will be thoroughly equipped with all the plant necessary for carrying on demonstration and experimental work on a fairly large scale. The Government has recently made a grant of £2,200 from the fund for the assistance of prospectors for ore-dressing plant, which it is the intention of the College to employ for experimenting with the complex ores of the country. The engineering and electrical departments are well supplied with all the necessary plant, and a large amount of testing and experimental work is now being carried out for the mines and power companies. The students who attended the day classes last year numbered about fifty. Special short courses can be arranged for those students who cannot afford to spend the full four years, but they cannot take the diploma. It is not necessary, however, that the full four years should be spent at Johannesburg, as practically all the other South African colleges lay themselves out to teach the first two years of the Transvaal University course; but the College authorities are now seriously considering the advisability of reducing this to one year, in order that students may be early brought to everyday contact with the practical application of their studies. Although the Mines Department lays it down that a man must have five years' practical experience of mining before he can hold a mine manager's certificate, the holder of a College diploma is absolved from two of these years.

We much regret that, by an unfortunate oversight, we omitted to state that the account of the meeting of the Secondary Schools Association in our May number was taken, with slight adaptation, from the full and able report in our esteemed contemporary, *Education*.

CHILDREN OF THE LAND.

RURAL EDUCATION AND RURAL OCCUPATIONS IN CANADA.

In the *Outlook* (New York) for May is a striking article by Mr. Herbert Francis Sherwood on "The Macdonald Movement in Canada." "Sir William Macdonald," says Mr. Sherwood, "is one of the two men of Scotch ancestry who are recognized from one end of the land of 'Our Lady of the Snows' to the other as among those who are leading Canada forward to higher things. The other is James Wilson Robertson, the former Principal of Macdonald College, for the construction and endowment of which Sir William gave approximately 5,000,000 dols. . . . Twelve years ago the two began labouring together, the one furnishing the means, the other executing the idea. Sir William used to think of his share as 'putting in a little yeast.' If one may be permitted to carry the simile a little further, Dr. Robertson may be said to have co-operated by kneading the dough and setting it in the oven. In this fashion began the execution of the agricultural phase of Sir William's idea for the improvement of Canadian life, which had been labelled the Macdonald Movement for the Improvement of Rural Conditions."

Dr. James Wilson Robertson is Commissioner of Agriculture and Dairying for the Dominion. His career is traced by Mr. Sherwood from the time when he commenced by scrubbing the floor of a cheese factory near Ingersoll, in Ontario. We leave readers to follow, in Mr. Sherwood's article, the remarkable story of Dr. Robertson's practical work in the improvement of agriculture and dairying, and quote the part relating to his work in education.

"Build up the Country in its Children."

Lord Salisbury once said that the great problem, not only of England, but of all humanity, is to maintain the fertility of the soil by the activity of plants and the activity of bacteria. Three essentials for the progressive development of human life are: (1) food, (2) protection for the young, and (3) continuation of the lessons of experience. The three fundamental occupations, therefore, in Dr. Robertson's view of life, are farming, home-making, and teaching. Upon this "tripod," as he calls it, he is building his scheme for rural improvement. Whether we like it or not, it must be that some shall till the soil if the human race is to survive. How are the conditions to be amended? Dr. Robertson proposes two ways: (1) By practical illustrations of how the occupation in each locality may be made more attractive, profitable, and satisfying to those engaged in farming; (2) By such an adjustment of schools and of training that the children will be attracted to rural occupations and will be qualified to be successful in them.

This is his educational platform. Dr. Robertson is constructive. He always has an end in view. These two planks comprise the platform of the Macdonald Movement, which he organized.

Working in harmony with Sir William and backed by the funds of this constructive manufacturer, Dr. Robertson introduced the leaven of a system which correlates education with agriculture from the primary school in the country district to the college. The two men have provided a specimen of what they think the Dominion of Canada needs, in the hope that its value will be so clearly demonstrated that the people will carry it forward themselves. The gifts of Sir William are intended as leaven only.

The Lesson of Crop Improvement.

The philosophy and practice of this pair of men in their undertakings for "building up the country in its children" are illustrated in the method which they took for teaching the lesson of crop improvement to Canadian farmers. In 1899, Dr. Robertson wished to learn whether the country was ripe for the acceptance of the theory that it is worth while for a farmer to use the best seed, and whether the interest of children in agriculture could be stimulated. He took from his private purse the sum of 100 dols. and offered it in prizes to Canadian boys and girls who would send him the largest heads from the most vigorous plants of wheat and oats taken from their fathers' farms. The response was remarkable. The letters which Dr. Robertson received from the farmers and their boys and girls were so suggestive and encouraging that the following winter he said, in substance, to Sir William: "Here is a great chance to do some educational work in progressive agriculture; to do something interesting, something attractive, something definite, something beneficial to the whole community, something easy, and yet with plenty of difficulties. Farmers and their families may fail to appreciate the educational advantages of a plan or scheme set out in a written statement, but here is something which would be so helpful and instructive to boys and girls that they would go on with it, and the habits of observation and thought and study would go on with them. I would like you to give me 10,000 dols. for prizes to set and keep this thing going for three years."

Sir William gave the money with a right good will. For the main competition the competitors were required to pick each year by hand the largest heads from the most vigorous and productive plants in sufficient

quantity to obtain seed from these heads to sow a quarter of an acre the following year. The careful records which were kept of the number of grains a hundred heads, and also of the weight, showed that in the three years the percentage of increase on the average for the Dominion for spring wheat was 18 per cent. in the number of grains and 28 per cent. in the weight, while in the oats the figures were 19 and 27 respectively. These were the results from several hundred seed grain plots operated by boys and girls under eighteen years of age.

As may be imagined, the children were not the only ones who gained from this practical demonstration. Their parents and neighbours learned the lesson also. This contest gave birth to the Canadian Seed Growers' Association, organized for the purpose of improving the crops of Canada; it is coextensive with the Dominion. It was estimated in 1906 that the crops of Canada already had been increased in value to the extent of half a million dollars as a direct result of the competitions. Moreover, it had been demonstrated that children could be interested in agriculture.

Manual Training.

Manual training, the vehicle by which agriculture and education were to be brought together, was the next step. Arguing that an example provided in a town is the most effective method of stimulating the officials of rural schools, Sir William, upon the advice of Dr. Robertson, founded throughout Canada manual training centres at twenty-one places. These were attended by 7,000 children and cost 3,600 dols. a month for teachers. At the end of three years the Local Authorities were free to continue the schools or not, as they chose. The leaven performed its task. In every case the school was taken over and others added. In Nova Scotia more than a score of school centres of the Macdonald type have been built and are conducted by means of local funds. In Ontario the three Macdonald centres have grown to more than two-score.

School Gardens.

The next step was the introduction into the rural schools of manual training, modified for the performance of its new duty. In order to make manual training effective in the country, and of such a nature as to accomplish the desired results, it was essential that it have certain characteristics. It was desirable that nature study, elementary biology, and elementary agriculture should become a part of the curriculum. The two leaveners now took two steps. They introduced the leaven of school gardens and the consolidation of rural schools. School gardens were attached to each of five schools in each of five provinces. A trained instructor was put in charge of each group of five schools, devoting one day a week to each school in his circuit, and giving instruction to the teachers as well as the children. The gardens have been a marked success, not only educationally as manual training, but agriculturally. Most useful lessons were learned of the advantages of using selected seed, of the methods of protecting crops from insects and fungous diseases, and of the rotation of crops. At a school garden in Prince Edward Island the children reaped 32 per cent. more wheat from a plot sown with selected seed than from a similar plot sown with unselected seed. In most of the gardens two plots side by side were planted with potatoes. The treatment of each plot was similar in every respect, except that the plants in one were sprayed with Bordeaux mixture to prevent blight. In every case the yield of potatoes from the sprayed plot was larger than the other. The increase was from 41 to 111 per cent. Bowesville, Ontario, the centre of the largest potato-producing section of eastern Canada, was put on another footing of profit by the work done at the Macdonald school garden attached to the school there.

As remarkable as these results with crops were the effects on the children themselves. In Ontario uniform examinations for entrance to the high schools are held in July. In 1906, in Carleton County, in schools without gardens 49 per cent. of the candidates passed, while of those who came from the five schools to which were attached gardens, 71 per cent. were successful. Apparently the work with the hands in the garden increased the capacity for work with books.

Consolidation of Rural Schools.

Sir William founded four consolidated schools, one in each of the provinces of Ontario, New Brunswick, Nova Scotia, and Prince Edward Island. The school work was graded, provision was made for classes in manual training, household science, and Nature study based on work in school gardens, and wagons were provided for the transportation of children. The cost of the schools for the three years was 180,000 dols. This leaven also accomplished its mission. Local School Boards are consolidating the feeble country schools. In Nova Scotia alone there are more than twenty-two consolidated schools in the room of fifty-three of the old type. Consolidation in Canada, where it has been tried, has raised the standard of rural education and increased the daily attendance from 50 to 100 per cent.

Training of Teachers.

These educational reforms created a demand for teachers trained in Nature study, agriculture, manual training, and household science. In order to meet this demand, Sir William provided at the Ontario Agricultural College, at Guelph, two large buildings for the residence and training of teachers. This school also trained for the business of home-making in the country, the college having already provided for agricultural education.

The crown of all is Macdonald College, at Ste. Anne de Bellevue. The province of Quebec, unlike several of the other provinces, has no agricultural college supported by public funds. Sir William has supplied the deficiency with an institution which rounds out the plan of the Macdonald Movement. Intended for training in agriculture, home-making, and teaching, it is probably the best equipped and most advanced institution of its kind in the world. It stands for the advancement of education, the prosecution of research work, and the dissemination of knowledge, all with particular regard to the interests and needs of the population in rural districts. It is Sir William's greatest yeast-cake. It is the supreme illustration of Dr. Robertson's methods of leavening. The mere fact of its existence is an educational force, for it advertises the underlying idea of the Macdonald Movement and sets people to thinking about it.

Its value in this respect was not forgotten when the site was selected. The college stands at one of the few points in Canada through which the two great Canadian trunk railways pass. These roads cross through the very centre of the farm within a few yards of each other, and the buildings are visible to every transcontinental traveller. It is a display advertisement of the first rank. It does for Canadian rural education what the eleven-ton cheese exhibited at the Chicago Exposition in 1893 by Dr. Robertson did for Canadian cheese. It sets people to talking about it. Relatively few farmers' children will have an opportunity to enter an agricultural college. The stimulation and technical knowledge must be brought to their door. The very fact that it was thought worth while to spend so much money in support of an idea indirectly serves as a stimulus to the adoption of the rural school system to meet the needs of the people it serves.

Who shall foretell the results of the efforts of the two Canadian leaveners? "The kingdom of heaven is like unto leaven, which a woman took, and hid in three measures of meal, till the whole was leavened."

THE EDUCATIONAL LADDER.

Cambridge University.—Winchester Reading Prizes: (1) G. G. Morris, Trinity; (2) J. R. M. Butler, Trinity, and A. F. Hall, St. John's, equal.—Le Bas Prize: Nanjangua Subbarao Subbarao, B.A., St. John's.—Stewart of Rannoch Scholarships: Restricted Scholarships in Hebrew: no candidates.—Open Scholarships in Hebrew: (1) W. B. Jefferson, Corpus; (2) J. Rothfield, Non-Coll.; B. M. Pickering acquitted himself with credit in the Hebrew papers.—Restricted Scholarships in Greek and Latin: (1) H. G. Dennaby, Emmanuel; (2) W. M. Peacock, Jesus; J. H. Taunton, Clare, was nearly equal to W. M. Peacock.—Restricted Scholarships in Sacred Music: J. E. D. Stancomb, Emmanuel.—Open Scholarship: C. G. B. Stevens, Emmanuel.

Clare.—Organist Studentship: W. C. Denis Browne.

Cardiff: University College.—Research Scholarship (Royal Commissioners for the Exhibition of 1851): Ernest Vanstone, B.Sc., recommended for a second year.—Drapers' Company's Scholarship, £35 for 1 year: Herbert John George, Intermediate School, Cardiff.—Richard Cory Scholarship, £25 a year for 3 years: Reginald Philip Jones, Intermediate School, Newport.—Caroline Williams Scholarship, £25 a year for 3 years by a women student at Aberdare Hall: Irene Frances Pratt, Intermediate School, Aberdare.—Brecon Scholarship, £27 a year for 3 years: David John Prichard Phillips, County School, Brecon.—City of Cardiff Scholarships in Arts: Annie Somerville Martin, Intermediate School, Cardiff, and Charles Hugh Watkins, Municipal Secondary School and Pupil-Teachers' Centre, Cardiff.—City of Cardiff Scholarship in Science: Isaac Frederick Amer, Municipal Secondary School, Cardiff.—Craddock Wells' Exhibitions: John Penry Williams, Intermediate School, Cardiff; Arthur Hewett Grant, Municipal Secondary School and Pupil-Teacher Centre, Cardiff; Hilda M. Browne, Municipal Secondary School, Cardiff; Emily May Davies, Municipal Secondary School and Pupil-Teacher Centre, Cardiff.—Exhibitions of £10 each: Trefor Jenkins Reynolds, County School, Aberdare; Kenneth Douglas Overstone, Intermediate School, Newport; William Henry Miles, County School, Barry; Susannah Jones, Ystalyfera and Ystradgynlais County Schools; Jenkyn Edward Jones, County School, Barry; William Emlyn Mordecai, County School, Pontypridd; William David Jenkins, County School, Merthyr; Gertrude Elsie Annie Jones, County School, Merthyr; Eunice Evans, County School, Merthyr; Gladys Ruby Markham, County School, Penarth; Bertram Brown Belcher, Intermediate School, Newport.

Edinburgh University.—Baxter Philosophical Scholarship: D. M. Baillie, M.A.

London University.—*University College.*—Benington Memorial Studentship in Craniology and Anthropometry: Helen D. Smith, Bedford College.—Hester Rothschild Prize in History: Catherine M. Firth.

Oxford: Somerville College.—Mary Conybeare Scholarship of £50 for 3 years: H. M. Kirk, Sheffield High School and University, for Classics.—Clothworkers' Scholarship of £50 for 3 years: K. E. Chester, King Edward's School for Girls, Birmingham, for French.—Exhibitions of £25: D. Dymond, Manchester High School for Girls, for History, and L. P. Scott, Bath High School, for German.—Exhibitions of £20: S. D. Scott-Scott, St. Paul's Girls' School, for French, and A. M. Cameron, Blackheath High School, for Classics.—Highly commended: J. de L. Mann, Bromley High School (Classics); E. Mills, Downs

School, Seaford (History); A. A. Harris, St. Felix School, Southwold (German); and E. Nicoll, Liverpool High School (History).

Oxford University.—Chancellor's and Newdigate Prizes: English Essay: not awarded. Newdigate Prize: Charles H. Bewley, Scholar of New College; *proxime accessit* E. W. V. Clifton, Exhibitioner of Balliol. Latin Verse: R. A. Knox, Scholar of Balliol; honourably mentioned, S. R. Kershaw Gurner, Scholar of St. John's. Latin Essay: L. W. Hunter, B.A., New College; honourably mentioned, G. D. Brooks, Scholar of Worcester. — Gaisford Prizes: Greek Verse: Roderick McKenzie, Scholar of Trinity. Greek Prose: not awarded.—Ellerton Theological Essay Prize: G. B. Allen, B.A., late Scholar of Wadham; *proxime accesserunt* H. Marriott, B.A. Keble, and W. L. Sperry, B.A. Queen's; honourably mentioned, E. B. A. Somerset, B.A., late Scholar of Exeter.—Senior Septuagint Prize: Gift of £10 to H. Marriott, B.A., on recommendation of the Examiners, for the excellence of his work in the recent examination.—Stanhope Historical Essay Prize: David Ogg, Scholar of Lincoln.—Gladstone Memorial Prize: John S. Eagles, Demy of Magdalen: *proxime accessit* James E. Todd; honourably mentioned, William O. Smith, Exhibitioner of Merton.—Lightfoot Scholarship: R. H. Snape, B.A. Emmanuel; honourably mentioned, G. G. G. Butler, B.A., Scholar of Trinity.—Boden Sanskrit Scholarship: E. N. Blandy, B.A. Balliol. — Abbott Scholarship: Henry Whitehead, Manchester Grammar School.

Christ Church.—Lectureship in Classics: Rev. G. K. A. Bell, B.A.

Exeter.—Scholarship in Natural Science: Charles Cartwright, Bradford Grammar School,

Magdalen.—Demyship in Classics: Robert Meikle, Merchant Taylors School.

Pembroke.—Tutorial Fellowship: Rev. G. B. Allen, B.A. Wadham.—Open Scholarships: E. W. S. Packard, St. Paul's School; W. P. Selbie, Aberdeen University; H. R. W. Smith, Wimbledon College and St. Paul's School; T. J. Kane, Downside School; and F. J. Nicoll, Fettes College.

Non-Collegiate.—Leathersellers' Exhibitions: Roland V. Dodd, Arthur L. Parker, and Henry R. Vernon.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, on May 21. Present: Mr. E. A. Butler, Vice-President, in the chair; Prof. Adams, Dr. Armitage Smith, Mr. Bain, Mr. Barlet, Rev. J. O. Bevan, Rev. J. B. Blomfield, Rev. A. W. Boulden, Mr. Charles, Mr. Eagles, Mr. Eve, Mr. Hawe, Miss Jebb, Mr. Marx, Mr. Millar Inglis, Mr. Morgan, Mr. Pendlebury, Mr. Rule, Mr. Starbuck, Mr. Storr, and Mr. White.

Before proceeding to the ordinary business of the meeting, the Council adopted the following Addresses of Condolence to Her Majesty the Queen Mother, and of Condolence and Congratulation to His Majesty King George V:—

To Her Majesty the Queen Mother.

The Council of the College of Preceptors beg most respectfully to tender to Her Majesty Queen Alexandra, the Queen Mother, their sincere and heartfelt sympathy and condolence on the death of His Majesty King Edward VII of blessed memory.

The Council recall with feelings of gratitude the deep interest which the late King had ever shown in all matters connected with the education of his people, and during the present days of universal mourning and sorrow they vividly remember the day in March, 1887, when the King, most graciously accompanied by your Majesty, opened the new building of the College in Bloomsbury Square.

In the name of many private-school masters, and of other members of the College, the Council venture to give expression to their keen sorrow at the great loss which the Empire has sustained by the death of our beloved King, and they pray Almighty God to help and sustain your Majesty in your sad bereavement.

To His Most Excellent Majesty King George V.

The Council of the College of Preceptors beg most humbly to offer to His Majesty the King their deep sympathy and condolence at the grievous loss sustained by His Majesty and the whole Empire by the death of His Majesty King Edward VII. The Council beg to tender to His Majesty the assurance of their profound loyalty to the Throne and devotion to the person of their Sovereign, and they pray Almighty God to grant that his reign may be long and beneficent to his people.

The Secretary reported that Examinations for Certificates of Ability to Teach had been held on May 19, and the thanks of the Council were voted to the Head Master and the Head Mistress of the Holborn Estate Grammar Schools for affording facilities for holding the examinations.

He also reported that the suggestions offered by members of the College, in response to the invitation of the Council, were being collated, and would shortly be submitted to the Committees to which the consideration of the suggestions had been referred.

Prof. J. W. Adamson, B.A., was appointed to deliver the autumn course of Lectures to Teachers on the Practice of Education.

It was resolved that experience in teaching art or manual work for the periods prescribed in clause 3 of the Diploma Examination Regulations should be accepted as satisfying the requirements of that clause.

On the recommendation of the Examination Committee, the Council adopted the following resolutions with regard to the Certificate Examinations, to come into operation at the Midsummer Examination, 1911:—(1) That a Second Class paper be set in Mensuration. (2) That a Third Class paper be set in Book-keeping, in accordance with the following syllabus: "A knowledge of the meaning of simple business terms and abbreviations. The treatment of simple business transactions in the Ledger, Cash Book, or Journal. An exercise or exercises will be set in any or all of these three books." (3) That Tamil be included among the First Class and Second Class subjects.

Mr. G. B. Bennett, B.A. Lond., Steyne School, Worthing, was elected a member of the College.

The following were admitted to the privileges of membership, under Section II, cl. 5 of the By-Laws:—

Miss A. C. Kearns, L.L.A., A.C.P., St. Paul's College, Selly Park, Birmingham.

Mr. H. S. Mills, B.A. Lond., L.C.P., 75 South Circular Road, Kilmainham, Dublin.

Miss E. M. Phillips, L.L.A., A.C.P., 140 Erlanger Road, New Cross, S.E.

Mr. J. E. Riordan, A.C.P., Wellington College, Shropshire.

The following books had been presented to the Library since the last meeting of the Council:—

By the Cambridge University Press.—Epistle to the Galatians (Cambridge Greek Testament).

By Macmillan & Co.—Bruce and Harper's Practical Chemistry; Hall's School Algebra, Part I; Summers' Select Letters of Seneca.

By Methuen & Co.—Bowyer's Stories from Ancient History; Wilmot-Buxton's Stories from the New Testament.

By J. Murray. — Hardwich and Costley-White's Old Testament History, Period III; Poole and Lassimonne's Dumas' Ce Gredin de Pritchard!

By Rivingtons.—Williams' Second Latin Book.

N.U.T. Report, 1910.

COLLEGE OF PRECEPTORS.

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH, May, 1910.

The following candidate passed in the Second Class:—

Draper, Miss H.

CONFÉRENCES FRANÇAISES.

Société Nationale des Professeurs de Français.

L'ACADÉMIE FRANÇAISE.

Par M. A. H. Bernaardt.

Le 30 Avril, à la belle salle du College of Preceptors, M. A. H. Bernaardt traitait, devant une nombreuse et brillante assistance, le très intéressant sujet de l'Académie Française. M. de Sorbier Pougnadoresse, Consul de France, était au fauteuil présidentiel.

L'Académie Française, comme presque toutes les institutions humaines (dit M. Bernaardt), a été précédée par des créations analogues, qui en ont été comme les tâtonnements incertains, les premières ébauches. Le Cardinal de Richelieu a eu, certes, beaucoup de mérite à fonder l'Académie, mais il a eu des prédécesseurs que l'histoire ne doit ni oublier ni passer sous silence.

Jean Antoine de Baïf, poète et érudit, est le premier qui nous ait fait connaître le théâtre antique par ses traductions en vers des poètes grecs, en 1537 et 1550. C'est lui qui, avec Ronsard et Du Bellay, conçut l'idée de cette société littéraire dont, en 1549, Du Bellay écrivit le manifeste dans son ouvrage "Illustration de la Langue Françoise." Fondée en 1570, elle disparut en 1589, mais l'idée persista après elle, et elle ne cessa, pour ainsi dire, pas d'être dans l'air jusqu'au jour où Conrart et Richelieu la réalisèrent dans le premier tiers du dix-septième siècle

L'influence qui s'est le plus exercée sur la littérature du dix-septième siècle a été celle de la société polie, celle où des hommes du monde et des écrivains se réunissent pour s'entretenir de questions sérieuses avec des femmes et sous la présidence d'une femme, la Marquise de Rambouillet. Le salon est une institution qui rendra service aux écrivains et qui parfois aussi va leur

créer des embarras. Mais pendant deux siècles on en retrouve la trace dans le mouvement littéraire. L'hôtel de Rambouillet n'a pas eu d'influence directe sur la littérature, mais il a rapproché les grands seigneurs des écrivains : ceux-là y ont pris l'habitude des conversations sérieuses et le goût des choses de l'esprit ; ceux-ci y ont appris la politesse et la tenue. On ne peut donc attribuer à l'hôtel de Rambouillet la création de l'Académie. Il est certain, pourtant, que l'idée de se réunir à jour fixe pour s'entretenir exclusivement de littérature est venue vers 1629 à plusieurs de ceux qui étaient admis auprès de la célèbre marquise. Chez Valentin Conrart, homme de beaucoup d'esprit et lettré délicat (1603–1674), s'assemblaient alors Godeau, Gombault, Chapelain, Desmarets, Habert, l'Abbé de Cerisy, Cérisay, Malleville et Giry. Ces réunions étaient tout intimes, et l'on s'était même promis d'en garder le secret ; mais une indiscrétion les fit connaître à Richelieu, et le tout puissant ministre fit proposer à Conrart et ses amis de "faire un corps et de s'assembler régulièrement et sous une autorité publique." Les offres du ministre furent accueillies d'abord avec inquiétude, mais on finit par se soumettre, et, le 2 janvier 1635, l'Académie Française était fondée, constituée officiellement par lettres patentes du roi Louis XIII.

Dès le premier jour, l'Académie résolut "de travailler à la pureté de la langue française et de la rendre capable de la plus haute éloquence" ; elle crut pouvoir atteindre son but en décidant que tous ses membres se réuniraient pour composer un dictionnaire, une grammaire, une rhétorique et une poétique. Pour ajouter les exemples aux préceptes, elle se proposait de juger sévèrement les ouvrages nouveaux de tous ses membres, et elle demandait que tous les académiciens voulussent bien, à tour de rôle, lire ou faire un discours sur un sujet de leur choix.

Tels ont été les débuts de cette illustre compagnie ; ses premiers membres ne furent pas tous, comme on peut bien le penser, des hommes de génie. Si l'Académie de 1635 possédait Balzac, Voiture, Gombauld, Maynard, Malleville, Racan, Godeau, Saint-Amant, Desmarets, Chapelain, Vaugelas et quelques autres dont la postérité a retenu les noms, elle comptait aussi un nombre assez considérable de personnages parfaitement obscurs. Au reste, trois hommes seulement jouèrent un rôle prépondérant dans la docte assemblée : ce furent Richelieu, Chapelain et Vaugelas.

La fondation de l'Académie excita chez les gens de lettres un enthousiasme général. Deux ans plus tard, la littérature était en possession de deux œuvres immortelles—"Le Cid" de Corneille et "Le Discours de la Méthode" de Descartes. L'un des premiers travaux de l'Académie fut de donner un avis motivé sur "Le Cid." C'était là une grosse affaire qu'elle dut entreprendre par suite de l'animosité de Richelieu contre Corneille. Dans le rapport qui en est rédigé par Chapelain, Corneille n'y est pas jugé, tant s'en faut, à sa juste valeur ; ce rapport n'en reste pas moins le premier bon morceau de critique littéraire qui ait paru en France.

Le dictionnaire fut ensuite la principale occupation de l'Académie, et la lenteur de son élaboration a été raillée à satiété. La première édition parut en 1694, et c'est en 1878 que nous avons eu la dernière. En tout, sept éditions ont vu le jour. Quand verrons-nous une nouvelle édition, qui soit de notre temps ?

Et les fauteuils académiques ? C'est par fiction qu'on les appelle "fauteuils" et qu'on leur donne un numéro. A la vérité, lesdits "fauteuils," qui pendant un certain temps existèrent, ne sont maintenant que de vulgaires chaises sans bras, recouvertes d'un velours très commun, et les académiciens prennent aux assemblées l'un quelconque des sièges qui se trouvent inoccupés au moment de leur entrée.

L'Académie n'a pas existé sans interruption : ses ennemis lui ont porté de rudes assauts, et. en 1793, ils l'ont tuée pour tout de bon. Il est heureux pour la postérité que le Secrétaire-Perpétuel d'alors, Morellet, ait réussi à cacher les archives et les lettres patentes dont la Convention avait ordonné la destruction. L'Académie fut reconstituée en 1803, et dans cette seconde organisation prit le nom de "Classe de la langue et de la littérature française."

La fièvre verte, quel écrivain ne l'a pas eue ? Le mot d'immortalité sonne bien à l'oreille des humbles qui ne demandent guère à la vie que des illusions et des prétextes à se tromper eux-mêmes. S'appelle-t-elle verte à cause de la couleur de l'habit qu'on sollicite, ou encore parce que c'est celle des raisins de la fable ? Tout homme qui tient une plume, et même nombre de gens qui n'ont jamais rien écrit sont candidats. C'est ce qui explique les intrigues sans nombre qui sont faites par ceux qui voudraient atteindre ce but convoité : être des quarante.

Comme bien on peut le penser, il a été question de permettre aux femmes d'être admises à l'Académie. De l'avis général, il est préférable que cela ne soit pas. Toutefois, s'il avait été possible de faire siéger des femmes à l'Académie, voici des noms d'Académiciennes qu'on aurait pu y faire asseoir : Mesdames Scudéry, de Sévigné, Deshoulières, de La Fayette, Dacier, de Staël, de Girardin, Desbordes-Valmore, et surtout Madame George Sand.

Tous les ans, au mois de Novembre, il y a une séance publique de l'Académie, où se distribuent les prix littéraires et les prix de vertu. Pour les premiers, quatre cents volumes à lire par an. Mais parlons plutôt des prix de vertu, au sujet desquels M. Thureau-Dangin disait en Novembre dernier : "Elles mériteraient d'être glorifiées dans tous les âges ces jeunes filles, des enfants parfois, qui, seules, sans aide, avec l'infime salaire du travailleur aux champs ou d'une ouvrière à la ville—et c'est là vraiment le miracle — subviennent à l'entretien d'une lourde maisonnée, vieux parents infirmes, petits frères et petites sœurs. . . ." Ecoutez la simple histoire de Laurentine Armenjon, la petite Savoyarde. Elle est la huitième d'une famille de quinze enfants. La mère, à la veille d'avoir un nouveau bébé, devient folle, tandis que le père s'épuise sur son maigre champ. Laurentine prend le gouvernement de la maison à neuf ans. Durant dix années elle y suffit. Elle soigne, habille, blanchit, élève les quatorze mioches, ses aînés et ses cadets. Les premiers sont partis, elle achève sa tâche avec les plus jeunes, et cette mère improvisée ne s'y arrache que pour entourer de soins assidus sa pauvre mère démente. Et de pareils dévouements ne sont pas rares. Si M. de Montyon n'est jamais entré à l'Académie, il y tient la première place, la plus populaire, à coup sûr, très justement à cause du bien incalculable qu'il a fait à ses milliers d'obligés et à ses imitateurs, dont il a stimulé la générosité.

Le quarante et unième fauteuil de l'Académie est le nom sous lequel on désigne un fauteuil imaginaire qui est censé avoir été occupé, depuis la fondation, par des écrivains célèbres que l'illustre compagnie n'a point admis dans son sein. Le nombre en est grand, et il n'est guère possible que de citer les plus connus, que voici, par ordre chronologique : Descartes, de qui date en France la vraie liberté de l'esprit ; Scarron, aussi railleur que Voltaire ; Pascal, l'immortel auteur des "Provinciales" ; Molière, l'auteur de tant de chefs d'œuvre immortels, le premier et le dernier mot de la comédie française ; La Rochefoucauld, auteur des "Maximes" ; Arnauld d'Andilly, Bayle, Regnard, J. B. Rousseau, Vauvenargues, Le Sage, L'Abbé Prévost, Piron qui, pour n'avoir pu entrer à l'Académie, l'accabla d'épigrammes, la dernière sa propre épitaphe :

Ci-gît Piron, qui ne fut rien,
Pas même académicien ;

J. J. Rousseau, "ce génie aux larmes amères" ; Diderot, ce soleil de toute une époque ; Mably, André Chénier, Beaumarchais, Rivarol, P. L. Courier, Balzac, Lamennais, Gérard de Nerval, Béranger pour qui l'Académie, dérogeant à sa dignité, fit les avances, mais le Tyrtée moderne refusa par une chanson.

THE TRAINING OF TEACHERS.

SELECTION OF JUNIOR STUDENTS.

The general policy of the Department to avoid competitive tests, especially in the elementary stages (says the *Aberdeen Free Press*), united as it is with greater reliance upon the teacher's judgment, is one that must commend itself to the warm sympathy of all educationists. But it has its limits, and, after all, there are worse evils than a trial of strength among candidates. Competition is a law of life, a means of marking good and bad, a condition of the elimination of evil, and so of progress. It goes on, and must go on, in every school and in every classroom in some form or other, unless stagnation is to ensue. What requires to be guarded against is degrees and forms of it that are dangerous. Healthy and stimulating in moderation, in excess it is ruinous to mind and body. The Department finds a special reason against it in the present instance, because it would be unjust "to candidates in smaller or more remote schools"—a method of protection for which few, we imagine, of the teachers of such schools will feel thankful. On general grounds it is contended that the selection of prospective teachers should be made on moral and on what may be called pedagogic rather than on purely intellectual grounds. Character and didactic predis-

position are to be considered as the main essentials. As to the former, there need and can be no question. As to the latter, it may be well doubted whether the feeble, stumbling efforts at the art of teaching of the prentice hand at the age of fifteen or sixteen are a more sure index of future success as a teacher than the possession of a sound basis of knowledge, if indeed teaching power can exist at all without an adequate measure of intellectual attainment. Further, the teacher who has got but an occasional pupil to send forward as a junior student has rarely a sufficient basis for a fair comparative estimate of the pupil's promise and abilities. Different teachers are bound to have different standards and to couch their reports in somewhat varying terms. Without any conscious attempt to convert their geese into swans, they may create somewhat exaggerated impressions. At any rate, a uniform standard of estimating the candidates' merits must be applied unless injustice is to be done. If such comparative standard can be applied without a competitive examination, well and good. If not, we must not be frightened by a mere bogey. It would not pass the wit of man to devise a simple competitive test which would readily discriminate suitable from unsuitable material without imposing any undue strain or any additional burden on either teacher or pupil. Most teachers would probably welcome it as on the whole the best method, giving assurance of efficiency in future members of the profession, and at the same time a fair field and no favour. The better—of selection, if it really is better—must not be suffered to become the enemy of the good.

BOY LABOUR AND UNEMPLOYMENT.

A CIRCULAR letter, signed by Mr. A. H. D. Acland, Chairman of the Consultative Committee of the Board of Education, and by many other well known educationists, says (*inter alia*) :—

The Majority and Minority Reports of the Poor Law Commission, though differing on many matters, agree in this, that the unsatisfactory condition of adolescent labour and education is "the gravest of all the grave facts which the Commission has laid bare," and that upon it is dependent much of the unemployment and crime of the country. The reports of the Consultative Committee of the Board of Education, of the Committee on Partial Exemption from School Attendance, and of the Education Committee of the London County Council; the evidence placed before the Home Office Committee on the Employment of Children Act, and the resolutions passed by the Trade Union Congress, the National Union of Teachers, the London Chamber of Commerce, and other important bodies, are unanimous in giving adhesion to the policy which we advocate. The establishment of a juvenile side to the National Labour Exchanges, under the direction of advisory committees inquiring into the type of work offered to juveniles and supervising them in employment, and the steps already taken and in contemplation by the Postmaster-General in regard to the boys employed by his Department, are substantial advances in the attempt to grapple with the problem.

We have been further encouraged by the sympathetic reply of the Prime Minister to the deputation which waited on him last year, and by pronouncements of the President of the Board of Education and other members of the Government. But much the most important events to which we desire to call attention have been the unanimous acceptance with the assent of all parties, by both the House of Commons and the House of Lords, of motions endorsing the policy for which we plead. . . .

That policy postulates in the first place that the minimum age for the exemption from school attendance, both partial and total, should be raised, so that such a system as that of "half-time," which Mr. Trevelyan stated was "educationally useless," and the industrial value of which was "greatly exaggerated," may be abolished. We further ask, and the Board of Education agrees, that there should be educational supervision of the boys and girls of the nation during the years of adolescence, partly by means of a longer period of instruction in the elementary school, and partly by means of tuition in continuation, trade, technical, or other schools, with reduced hours of labour, so that the heavy expenditure incurred by the nation in the elementary schools may not be wasted, and that every boy and girl may be adequately trained for their careers in life, both of which proposals are endorsed by the high authority of the Consultative Committee of the Board of Education. We contend also that such definitely undesirable occupations as trading in the streets, on which a report from the departmental Committee may be shortly expected, shall be absolutely prohibited (instead of, as now, licensed) for boys and girls up to at least eighteen.

It was officially stated in the House of Commons, in the debate to which reference has been made, that there was "no Treasury or Government reluctance" to this programme, and that all that was required was the force of public opinion behind it. It is in order to stimulate this public opinion that we venture to address you, and to hope that all parties may now go forward in redressing a great national evil and in laying the foundations of a better citizenship for the future.

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CURRENT EVENTS.

Fixtures.

MLLE CAPDEVIELLE will lecture to the Société Nationale des Professeurs de Français en Angleterre on "Les Sonnets Français" at the College of Preceptors on June 25, at 4 p.m.

* * *

A MEETING will be held at the Mansion House on June 23 in promotion of the proposed Endowment Fund of £10,000. for the National Home-Reading Union. The President, H.R.H. Princess Louise, Duchess of Argyll, has promised to attend.

* * *

THE DUCHESS OF MARLBOROUGH will hold a Drawing Room Meeting in aid of the Building Fund of Bedford College at Sunderland House on June 29. The Duchess, Mr. S. H. Butcher, M.P., and Mr. Granville Barker will speak.

* * *

THE public presentation of graduates at London University, arranged for May 18, has been postponed till November 28.

* * *

MR. ROOSEVELT will deliver the Romanes Lecture at Oxford on June 7.

* * *

THE Annual Conference of the Association of Head Mistresses will be held at the Godolphin School, Salisbury, June 10–11, Miss Burstall, M.A., presiding.

* * *

THE Edinburgh Vacation Courses in English, French, and German will be held in Edinburgh University during August. The introductory address will be given on August 1.

* * *

THE Cours de Vacances de Français Moderne at the University of Geneva will be held July 16 to August 27.

Honours.

THE University of Oxford has conferred the following honorary degrees:

D.Sc.: Emile Cartailhac, Correspondent of the Institute of France, Lecturer in Prehistoric Archæology in the University of Toulouse.

M.A.: Don Martino de Zilva Wickremasinghe, Lecturer in Tamil and Telegu; Stephen Langdon, Ph.D. Col., of Jesus College, Reader in Assyriology and Comparative Semitic Philology.

* * *

THE University of Oxford proposes to confer the honorary degree of D.C.L. upon Mr. Roosevelt on June 6.

* * *

THE University of Cambridge has conferred the following honorary degrees:

LL.D.: Mr. Roosevelt; Earl of Selborne; Right Hon. J. W. Lowther, M.A. Trinity, Speaker of the House of Commons; Right Hon. Christopher Palles, LL.D. Dublin, Lord Chief Baron of the Exchequer in Ireland; Right Hon. Syed Ameer Ali, C.I.E.; Right Rev. Henry William Tottie, D.D. Upsala, Bishop of Kalmar, Sweden; Mr. T. G. Jackson, R.A., M.A., Oxford; Sir Edward Maunde Thompson, D.C.L. Oxford; Sir Oliver Lodge, D.Sc. London, F.R.S., Principal of the University of Birmingham; the Very Rev. George Adam Smith, D.D. Edinburgh, Principal of the University of Aberdeen; Mr. Charles Harding Firth, M.A., LL.D., Regius Professor of Modern History at Oxford.

Sc.D.: Dr. W. H. Perkin, Ph.D., F.R.S., Professor of Organic Chemistry at Manchester.
Mus.D.: Sir Walter Parratt, Professor of Music at Oxford.

Endowments and Benefactions.

M. Albert Kahn, of Paris, has vested in trustees funds for the establishment of two Travelling Fellowships for Englishmen, £660 each—£600 for travelling expenses and £60 for books and souvenirs—the only condition being that each Fellow shall prepare a report giving his or her impressions of the countries visited. Preference is to be given to "teachers and scholars and investigators who have shown marked ability and promise as educators, and who will look upon their travels as preparation for the performance of high duties in the instruction and education of their fellow-countrymen, and not as affording a mere vacation or pleasure trip."

* * *

Oxford Convocation has accepted the Churton Collins Memorial Committee's offer of £100 to found a prize to be given to University Extension students or others for proficiency in English Literature and Ancient Classical Literature.

* * *

The late Mrs. Paget Toynbee has, subject to the life interest of her husband, left to the University of Oxford the sum of £2,000, the income of which is to be devoted to an annual prize in memory of her husband for the encouragement of the study of the works of Dante, of old French language and literature, and of Provençal language and literature.

* * *

Mr. James Flower, the surviving trustee of the will of the late Miss Rebecca Flower Squire, has offered the sum of £1,500 London County Council stock as a further endowment for the Squire Law Library, Cambridge University.

* * *

Armstrong College has received £2,000 towards the endowment of a Lectureship in Commercial and Industrial Economics from Mr. G. B. Hunter (Chairman of Messrs. Swan, Hunter, and Wigham Richardson & Co., Wallsend-on-Tyne), who will make up the income for the first five years to £250 a year. Also £1,000 towards the extension of the Art Department, from an anonymous donor.

* * *

The National Home-Reading Union, on the occasion of its majority, appeals for "an endowment fund of £10,000 to enable it to avoid an annually recurring deficit in its modest working expenses and to enlarge its operations in the future." The Board of Education have expressed their "strong sense of the importance which attaches to the Union's propaganda, and their earnest hope that the proposed endowment fund will receive adequate support from private individuals and public bodies." Dr. Paton, the founder and guiding spirit of the Union, has given £400.

* * *

Mrs. Currie, Mrs. Merrilees, and Mrs. Percy Molteno have given £25,000 to the University of South Africa (Cape Town) for the erection of a hall and the foundation of a scholarship of £150 a year in memory of their father, the late Sir Donald Currie.

* * *

Mr. Isaac Wyman, a lawyer and landowner of Salem, Massachusetts, has left estate valued at 10,000,000 dols. (say £2,000,000) to Princeton University for such use "as the trustees may decide."

Scholarships and Prizes.

Oxford Scholarships, &c.:—June 7: Christ Church (History); Brasenose (Divinity). — June 14: Exeter — one scholarship of £80 a year, and one or two Exhibitions; no age limit. Apply promptly to the Rector of the College.—June 28: Brasenose, and Non-Collegiate (Natural Science).

* * *

A combined examination of non-resident candidates for open scholarships, exhibitions, &c., held by Trinity, Clare, Trinity Hall, Peterhouse, and Sidney Sussex Colleges, Cambridge, will begin December 6. Each candidate is requested beforehand to fill up a form of application stating the order of his preferences for the emoluments offered. Detailed information may be obtained from any of the tutors of Trinity; the Senior Tutor of Clare; the Tutor of Trinity Hall; the Tutor of Peterhouse; or the Master of Sidney Sussex.

* * *

The Shaw Research Studentship, 100 guineas for two years, at the London School of Economics, will be awarded in July. Committee of Award will interview candidates June 21. Examinations in Economics and Political Science, June 22–3.

* * *

The University of Durham offers Entrance Scholarships in Theology, Classics, and Mathematics. Examination begins June 15. Particulars from the Secretary of Examinations, University Offices, Durham.

* * *

University College, Reading, offers an Arts Scholarship and a Science Scholarship, £50 a year each for three years. Competition in June. Particulars from the Tutorial Secretary.

* * *

Westminster School offers not less than 7 Residential and 3 Non-Residential Scholarships and some Exhibitions. Examination June 22–24. Particulars (by letter) from the Bursar, Little Dean's Yard, London, S.W.

* * *

Sedbergh School offers open Scholarships and Exhibitions reserved for sons of clergymen and officers. Examination begins June 22. Apply to the Head Master.

* * *

Blundell's School, Tiverton, offers 10 Scholarships, 2 at least tenable in the Army classes. Examination June 16, 17. Apply to the Head Master, or to the Clerk to the Governors.

* * *

The Abbey Street School Charity offers grants of £3 to children resident in Bethnal Green or Spitalfields that are, or for not less than five years have been, scholars in a public elementary school and are now legally exempt from school attendance, and wish to continue their work in higher elementary schools; and an indefinite number of Exhibitions not exceeding £20 a year for two years to boys and girls, tenable at any place of education higher than elementary, or "of technical, professional, or industrial instruction approved by the trustees, or during the engagement of the holder as a pupil-teacher in a public elementary school."

* * *

The City of London College, Moorfields, offers at least 10 studentships to boys and girls not under sixteen, entitling the holders to a year's free tuition in the day modern school of of the College. The studentships may be extended to a second year on recommendation of the Principal.

Appointments and Vacancies.

Mr. Alfred Denis Godley, M.A., Fellow and Classical Tutor of Magdalen, has been elected Public Orator in Oxford University.

* * *

Dr. Dicey, Emeritus Vinerian Professor of English Law, and Fellow of All Souls, has been appointed to the new Lectureship in Private International Law in Oxford University.

* * *

Sir Isambard Owen has signified his intention of not allowing himself to be re-nominated as Vice-Chancellor of the University of Wales.

* * *

Mr. K. J. J. Mackenzie, M.A., has been appointed Lecturer in Agriculture in the University of Cambridge.

* * *

Prof. MacCunn will retire from the Chair of Philosophy, and the Rev. John Sephton from the Readership in Icelandic, in the University of Liverpool, at the end of the current session.

* * *

In Durham University the Rev. H. Gee, D.D. Oxon., Master of University College, has been appointed Professor of Church History; Mr. F. B. Jevons, D.Litt., Principal of Hatfield Hall, Professor of Philosophy; Mr. How, Professor of Latin; and Mr. E. M. Ellershaw, B.A., Censor of House Students, Professor of English Language and Literature.

* * *

Mr. George Unwin, B.A., Lecturer in Economic History, Edinburgh University, has been appointed Professor of Economic History in the University of Manchester.

* * *

The Chair of Physics in the University of Bristol is vacant through the resignation of Prof. Chattock.

* * *

The Rev. Prof. Graham proposes to retire from the Chair of Metaphysics and Ethics in Magee College, Londonderry.

* * *

Prof. Fitzgerald has announced his resignation of the Chair of Engineering in the University of Belfast.

* * *

Mr. Sinclair Laird, M.A., Assistant to the Professor of Education, St. Andrews University, has been appointed Associate Professor of Education in Queen's University, Ontario.

* * *

Mr. A. G. Wright, M.A., Inspector of Education, Karachi, has been appointed Director of Public Instruction in the Central Provinces, India.

* * *

Mr. C. L. Boulenger, M.A., King's College, Cambridge, has been appointed Lecturer in Zoology in Birmingham University.

* * *

Mr. E. H. McGrath, of Christ Church, Oxford, has been appointed Lecturer in the University of Göttingen, in place of the late Professor Dr. Tamson.

* * *

The Rev. Dr. Wood, M.V.O., has intimated his resignation of the Head Mastership of Harrow School, which he has held since 1898.

* * *

Mr. T. E. Page, the Rev. F. S. Ramsbotham, and Mr. J. E. Judson—all House Masters at Charterhouse—will retire at the end of the summer term.

Mr. R. Noel Douglas, M.A. Cantab., House Master, Uppingham School, has been appointed Head Master of Giggleswick School.

* * *

The Head Mastership of the King's School, Canterbury, will be vacant in autumn through the appointment of Canon A. J. Galpin to the living of Saltwood, near Hythe.

* * *

The Rev. W. Wyatt Holdgate, M.A. Cantab., Head Master, Magdalen College School, Brackley, has been appointed Head Master of Sutton Valence School. He is succeeded by the Rev. R. Forster Ashwin, M.A. Cantab., second master, Abingdon School.

* * *

Miss L. E. Savill, of Somerville College, Oxford, History Mistress at Bradford Girls' Grammar School, has been appointed Head Mistress of the Lincoln Girls' High School.

* * *

Miss Elizabeth Stevenson, Classical Tripos and Teachers' Diploma (Theory and Practice), Cambridge, Head Mistress of the Collegiate School for Girls, Port Elizabeth, Cape Colony, formerly Lecturer in Methods of Teaching History and Classics in the Maria Grey Training College for Secondary Teachers, London, has been appointed Principal of St. George's High School for Girls and of St. George's Training College for Women Teachers, Edinburgh.

* * *

Mr. B. Elford, M.A. Oxon., Science Master, Bath College, has been appointed Head Master of the Preparatory Department, King's School, Rochester. Mr. L. B. Hornsby-Wright, M.A. Cantab., has been appointed Science Master and House Master at the King's School.

* * *

Mr. Alexander Elmslie, M.A., Rector of Keith Grammar School, has been appointed Rector of Ayr Academy.

* * *

Cardiff University College requires two Women Assistant Lecturers in the Departments for the Training of of Women Teachers for Elementary and Secondary Schools. Particulars from the Registrar. Applications to be lodged by June 4.

* * *

The L.C.C. requires for Avery Hill Training College for Women Students, Eltham, an Assistant Lecturer (woman) specially qualified in Nature Study, Reading, and Recitation; and an Assistant Lecturer (woman) specially qualified in History. £130 each, rising to £170. Also, for Stockwell Secondary School, a full-time Drill Mistress. £130. Forms and particulars from the Education Officer. Applications to be lodged by June 6.

* * *

Leicester Municipal School of Art requires a Modelling Master. £150. Forms from the Secretary. Applications by June 6.

Literary Items.

Dr. J. E. Sandys, Public Orator of the University of Cambridge, has published (through Messrs. Macmillan) "Orationes et Epistolae Cantabrigienses"—all the Latin speeches and letters that he has composed during the past generation. The distinguished persons presented for honorary degrees during his tenure of office have numbered 530, and the volume contains 590 compositions.

* * *

The Cambridge University Press series of "County Geographies" is being extended to Scotland. "Lanarkshire," by Frederick Mort, is in the press and will be followed by "Ayrshire." Other volumes are in active preparation.

The net cost of the preparation of the official "History of the South African War," up to March 31, 1909, was £33,991. 2s. 7d. "Little, if any, further expenditure will be required."

* * *

Messrs. J. M. Dent & Sons will issue almost immediately a volume of "Essays, Elizabethan and Modern," by Prof. Dowden.

General.

The Council of Armstrong College has recommended the establishment of a Commercial Education Committee to build up in due course a Faculty of Commerce.

* * *

It has been resolved to establish a University Settlement in Bristol, "(1) to promote the general welfare of the neighbourhood in which it is situated, and (2) to provide a centre for the systematic study of social and industrial conditions."

* * *

An urgent appeal has been issued to the residents of the County Borough of Southampton for some £50,000 to save Hartley University College from collapse.

* * *

Lord Tullibardine, M.P., cut the first sod on the site of the Scottish History Exhibition to be held in Glasgow next year. A guarantee fund of some £140,000 has been subscribed.

SCHOOL RECOGNITION IN ENGLAND IN THE LIGHT OF FOREIGN PRACTICE.

At the Evening Meeting of the members of the College of Preceptors, on May 4, Prof. M. E. Sadler in the chair, Mr. J. S. Thornton, B.A., gave a lecture on the above subject. He said:—

When I wrote last week to Sir Robert Morant to ask him if he would be good enough to give me certain statistics with regard to the recognition of schools, I ventured to say to him, with reference to the very small number of private schools that had sought and gained recognition, that I hoped our meeting to-night would give him a good lift up in the matter. That is an appeal, ladies and gentlemen, to you to join heartily and freely, every one who has even the slightest contribution to offer, in the debate which will follow. You know what Mr. Lloyd-George says: "Hit me as hard as you like so long as you leave me the opportunity to hit back." The lecture that provokes no criticism falls dead and is, more or less, useless. I have written to several gentlemen of various schools of educational thinking, and my doing so has very much interfered with the preparation of this lecture, so that you will have to put up with a much rougher thing than I should have liked to offer you. I wrote to people in every camp—I see many of them here; they are good friends of mine though we differ, and I shall express my disagreement with them as sharply and as clearly as it is in my power to do. I know there is one Danish reporter here present, and his presence will bring home to your minds that, in a way, this meeting is just as interesting to some of my friends across the water as it is to Englishmen; and much more interesting than it is to most Englishmen, for we in England are slowly, tentatively, rather sluggishly, adopting their plans. Did I say "rather sluggishly"? I must call that word back; for I remember that, in January of last year, at Fircroft, near Birmingham, was begun a school—a boarding school for grown-ups—which is as good as any People's High School of the same size in Denmark that I have ever visited, and decidedly better staffed than most; and a spirit reigns in that school which would delight you to witness.

I have said here, in the syllabus, that the material is so abundant as to embarrass me and that the time at my disposal determines my method. It must be the dogmatic method. I must give results without processes; but you must not therefore suppose that I wish to be dogmatic. Wherever I state a result or an opinion which does not commend itself to any one here, and which seems to them to conflict utterly with anything like good educational doctrine, let them go for it, and then there will be the opportunity to explain and to defend, to add the proof and the argument; which, of course, must be ready when called for.

The Situation in England.

In the Returns of 1897 were statistics regarding 6,209 schools usually classed as "secondary," with 291,000 pupils in them. Of these 6,209 schools, 83 per cent., with 52 per cent. of the pupils, sprang from private enterprise. Now, in the new list of recognized secondary schools, which appeared in the early days of this year, out of a total of 883 schools, only 15 private schools (12 of them girls' schools) appeared as "recognized." Many of these private schools, we know, are too weak or too incomplete to secure recognition. But, when every deduction is made for these and like causes, we feel that there must be something wrong—very wrong. If we compare the situation with that in the four countries in the North of Europe, we shall find that there one half of efficient secondary schools, of recognized schools, are in private hands, and that not the half, but nearly the whole, of improvements and of the onward advance in education is due to these same schools.

What is a Recognized School?

We are thus confronted in England by a huge, unhappy undervaluation of the most effective factor in educational development—one, moreover, most consonant with our national character and history. When I speak of the private school as the most efficient factor in educational development, you must not misunderstand me. "A private school may be the best or worst of schools; but recognition is a winnowing process that leaves little but grain behind. Such a recognized school has one crying defect (salaries too low) from which State school and municipal school are more free, and it has several striking merits in a much higher degree than they. It can come much closer to the home than the municipal school; it has a greater expansive force and can penetrate to nooks and corners of the land to which neither State school nor municipal school can hope to come; and, through its greater freedom (which is, after all, only a relative freedom), it possesses the lion's share of new plans, ideas, and methods which, after due trial, pass into general currency. It is neither private nor public, but a strong blend of both. It is public because it passes a public test and can give guarantees of efficiency. It is private because it generally belongs to a private individual, who has the appointment of his own staff and can make of his school an ordered, effective unity, and is, in the thousand and one details of school life, tied down much less than usual to a prescribed routine. There is nothing yet quite like it in England. Its nearest analogue is not the private school as we know it, but the so-called 'public school,' which, being controlled neither by Central nor Local Authority, should rather be called private than public." *

What says the Press?

I venture to think that it is to such a school we must look for our salvation. It is the only kind of school that, in conjunction with the municipal schools, can do the work that we must have done, and it will do that work in two ways; first, by its own activity, and, secondly, by the invigorating influence which it will exert on all other kinds of educational activity. And it is this that makes the question of school recognition in England, at the present moment, so important. But the change will not come about without active work and earnest striving, for it is amazing with what unanimity our chief Educational Authorities are agreed that no salvation is to be found in any such quarter as this. Consider for a moment the utterances—the unguarded, unconscious utterances—of our leading newspapers, our teachers' societies, and even our Cabinet Ministers. The *Manchester Guardian*, for instance, in 1903, urged, but urged in vain, that "the private secondary schools of the district, *whose work must for some time remain highly important*," should have one representative on the local Education Committee. The words I have italicized need no comment from me. They evidently presuppose that the same thing will happen in the secondary sphere as has already happened in the elementary; that, after a period of

* These words, slightly adapted, are extracted from page 136 of the "Report of an Inquiry into the Conditions of Service of Teachers in English and Foreign Secondary Schools." (London: George Bell & Sons, 1910.)

gradual but inevitable decay, the private school, whether in its present form or in any other, will cease to be; and, with exceptions too trifling to be noticed, will leave the municipal school in possession of the field.

Attitude of Teachers' Societies.

Let us now turn to the great teachers' societies, and let us begin with the Teachers' Guild and the National Union of Teachers. A few years ago, in this very hall, a Conference was held under the auspices of the Teachers' Guild. In the middle of it I could not help commenting on one curious fact. The only teachers' organization in London that had a hall capacious enough for the Conference to meet in was one which owed its foundation to private secondary teachers alone, and which still, to a very large extent, is supported and directed by teachers of that description. And yet, by a curious accident (for I am persuaded it was nothing more), the only kind of school that did not appear on the programme of the Conference was just that kind whose hospitality rendered the meeting of the Conference possible. Indignant comment was a little out of order, but it so evidently hit a blot that it was allowed by the Chairman to pass, not, however, without a declaration from Mr. Marshall Jackman, the President of the Union for this year (1910), that for his part it was only a *national* system of education in which he was greatly concerned, as though other kinds did not count. Now it is well to pay attention to the implication or the assumption contained in those words. People do not know, until they try, how difficult it is to define "national education." Mr. Jackman's assumption seems to be that only such education as is controlled by Central Government and Local Authority can be called national. But he forgets that Oxford and Cambridge are controlled by neither; and he would hesitate, as we should all hesitate, to withhold that name from our two ancient Universities, or from the great public schools, which are equally guiltless of connexion with authority either central or local; or, again, from the great private schools to which so much of our national progress in education has been due. Not long ago the schools aided by the National Society for the Education of the Poor in the Principles of the Established Church were, by an abbreviation very happy for the schools themselves, called National Schools, but that name is no longer given to such schools; it is felt they had no right to it; and in the same way I venture to think the day is not far distant when the name will no longer be given in any peculiar and exclusive sense to schools controlled by Central and Local Authorities. They are indeed but a portion, a very important portion, but still only a portion, of our national system.

So, too, with the College of Preceptors. Whatever may be said of it in times long past, it has in recent years regarded the educational problem in the same unhopeful way as the other two. All these particulars about State recognition of schools are far from new. They were, sixteen years ago, pressed upon the attention of several of the Royal Commissioners on Secondary Education as matters of urgent interest. And now we have Mr. Runciman declaring, with some complacency, at the Whitehall Rooms on November 24 last, that "the old private schools had died out with amazing rapidity"!

Such, then, is the attitude, the expectation, the behaviour of the people in England, most busied with education, towards what, under fairly skilful management, must prove the most efficient and fruitful factor in our coming development. They expect no great, no startling development in this direction. But in this, as in some other cases, the unexpected may nevertheless happen.

Free Church Policy.

On this question of the recognition of schools, only those who have the firmest grip of the principles involved, and of their importance to the welfare of the State, can have any success in the fight. To those who have made any study of the history of education it becomes clear as day that as the Free Churches are to the State Church—bringing, by their rough energy, fresh life-blood into that which, without their example and stimulus, would constantly tend to become cold, rigid, and formal—so is the private school to the State school. And so one would expect *a priori* that the Free Churchman would be the first to see the value of the private school and to defend it from unjust attacks. Yet the fact is otherwise. The kind of private school in Denmark which forms that country's chief contribution to educational progress and has won the heartiest admiration from all who have studied it, whether from England or from other countries, is the People's High School, which, by the various activities it has set in motion, accounts for well nigh half the exports of the country. Though these schools are private, in the English sense of the term, being the property of individuals, they receive substantial help from the State. The State also is content if it is convinced that it receives full value for the sums expended and seeks to exercise no control. That such a school is suited to English conditions is proved by the brilliant success of Fircroft at Bournville. But, if we are to have as many Fircrofts in England as in Denmark—if, for example, we are to have seventy or eighty such schools dotted about the West Riding of Yorkshire and over the other counties in proportion—it can only be by using Danish methods. To which the Free Churchman replies—and, alas! the Government with him—"No grants to private schools, however good! No grants without control, however clear it be that no control is needed! But grants to every type of school—*except the best!*"

This question of grants is closely connected with that of school recognition; for, with the tendency to make education cheaper, it becomes more and more difficult for a school to fulfil the conditions for recognition unless some make-weight be offered (grant we can hardly call it) that will enable it to hold its own in competition with publicly managed schools that offer education much below cost price. The real objection to such a make-weight is stated by Dr. Clifford: "As things are in England, I cannot see my way to advocate the policy that the Government and the Local Education Authorities should do more for 'private schools' than is being done now. The Anglican and Roman Catholic schools are, in effect, 'private schools,' and they are taking more of the money of the citizen as citizen every year, and securing at the same time more control. While these conditions last, more financial aid to 'private schools' simply means increased church rates."

It might be enough to say, in answer to this, that Free Churchmen hate Popery more than they love liberty. But I will go further than this, and say that such objectors misconceive the situation entirely. When they speak of the sacred principle of no State support without State control, the words are entirely irrelevant to the situation. It is not the school that is supported, but the parent through the school. In consequence of the Government subsidy, the child is provided with an education below the cost price. In material things the situation is understood at a glance—it is only when we come to matters that affect the intellect and the spirit that men get into a fog. The last time I saw the late Right Honorable A. J. Mundella, I heard him say that public money and private schools could have nothing to do with one another, while at the very same time he was negotiating between Government Departments and private firms in Sheffield for the execution of Government orders there. In both cases—armour plates and boys at school, to wit—it is a transaction over the counter. The Sheffield firm and the schoolmaster alike must be able to give such guarantees for high and honourable dealing that there can be no doubt their engagements will be duly performed; and, if such guarantees are forthcoming, the control is as absurd and uncalled for in the one case as in the other. The only real question that the State needs to ask, in determining whether some part, some large part, of educational work shall be devolved on schools with independent management, is whether the work can be better done in that way; whether such a way leads to freshness of treatment, to ready adaptation to changing needs, to new and ingenious ways of reaching the ends desired. And the evidence of this—at any rate, to those who have any knowledge of the history of education—is simply overwhelming.*

When a private school, well equipped and well staffed, is turning out year by year capable young citizens that worthily fill their stations in life, it is supporting the State far more than the State is supporting it by grants of money that will enable it to hold up its head among its municipal competitors that dip their hands so deep into the public purse.

The Board of Education.

My criticism of the Board of Education in this matter will be very brief, but fundamental. The Teachers' Guild reached its

* See Vol. 17 of "Special Reports on Educational Subjects" *passim* (especially pages 62–65 and pages 105–134); and, for Sweden, *Educational Times*, December, 1909. There is no full statement of the matter as regards England, but some details may be found in the *Oxford University Extension Gazette*, April, 1895, "On the Beginnings of the Local Examinations," and in an article on the Acland-Roscoe Secondary Education Bill in the *Educational Review* (London), Dec. 1892.

high-water mark of prosperity in the very brilliant Conference held under the presidency of the late Sir Richard Jebb at Merchant Taylors School in January, 1896. Of this Conference the *Manchester Guardian*, of January 17 of that year spoke thus: "No such assemblage of teachers ever before met in England as the Conference at Merchant Taylors School which came to an end this afternoon (January 16). It was abundantly clear here, as at the Preceptors' Conference last week, and at a meeting of Quaker teachers on Monday and Tuesday, that the Government have at last found ways of acquainting themselves with the views of teachers other than by receiving deputations from them. At all these gatherings Mr. Michael Sadler from the Education Office, with his assistant, Mr. Morant, was in constant attendance, for the most part as a hearer and note-taker only, though private conversation gave many opportunities for a thorough exchange of opinions." That was a bright beginning of a new era. Why has it not been continued? If it had been continued, I venture to say that we should not find the Private Schools Association urging its members to beware of the Board of Education and all its works.

A New Lever.

Mr. Sadler, in his opening words, spoke with generous appreciation of my work in the North of Europe. But he did not tell you of his own part in it—how on three separate occasions he provided me with platform and audience; how, too, he sketched out for me, especially in Vol. I of Special Reports, the plan he desired to have carried out; how eager was his sympathy and how steady his co-operation throughout. And still less did he tell you of the host of friends and helpers of every kind, from Otto Salomon in 1888 to Rektor Georg Bruun last November, who had been patient with me and enabled me to see things in the right light; nor yet of the nine schools, State schools, municipal schools, private schools, of whose staffs I had for a while been a member, thus describing the matters I was interested in, from within as well as from without. If, as the result of his labours at Oxford, London, Manchester, and elsewhere, Mr. Sadler sums up in himself the experiences of some hundreds of experts, these three reports he has planned with me sum up the experiences of as many hundreds more. And, as the proofs were corrected in each case by men in opposite camps, I think we may say we can present them to you not indeed as faultless documents (that is impossible!), but as documents upon which you can rely. The results set forth in them should be especially gratifying to the members of this College, which, according to its Charter, was founded to help "persons engaged or desiring to be engaged in the education of youth, particularly in the private schools of England and Wales." For, whilst keeping within the four corners of the Charter, they give both a wider and surer foundation on which to build.

Conclusion.

The municipal school is strongest as a stereotyper: it can throw off, at the cheapest rate, a large number of schools of a few fixed leading types. But it cannot rapidly adapt itself to new circumstances. Whereas schools of independent origin and management, by the experiments they can initiate at will, really determine the form of the schools of the next generation. It is their collective influence that determines—not, of course, formally and visibly, but virtually and really — when the stereotyped plates shall be broken up, whether they shall be broken up in whole or in part, and in what parts; and what shall be the character of the new parts introduced. In any happily constituted system of education these two kinds of school are not opponents but are complementary. The private, independent school exists not only for its own sake but for that of the public school, into which, time after time, it breathes the breath of life. Recognition proposes to take these independent elements, at present so feeble and scattered, and strengthen them, by giving them a suitable organization. And I cannot conceive a more noble aim, and one more in consonance with its Charter, than for this College to watch zealously over the progress and well-being of such an organization. You may not at once get all you want; but success is sure in the end, and there is not a school in the land, from the highest to the lowest, that will not be the better for your faithful striving.

I will not cease from mental fight,
Nor shall my sword sleep in my hand,
Till we have built Jerusalem
In England's green and pleasant land.

Mr. Nesbitt, referring to the question of the assistance given by Local Education Authorities to private schools, said that inquiries made by the Teachers' Guild showed that in two or three cases scholarships were allowed to be held at private schools, and in one or two other cases grants were made for laboratories and various things of that kind, but practically the County Councils were unanimous in not giving any pecuniary assistance to private schools. School after school was being established by municipal authorities with lower fees, with all the strength of the State behind them, and it was not to be expected that private schools could continue to exist side by side with these municipal schools. He considered that all efficient private schools should be placed in the same position as the municipal schools with regard to receiving grants. He understood that this was the rule in Denmark, and that the method answered exceedingly well. The question to be considered was, whether private schools should be stamped out of existence, or whether some method should be adopted for preserving them.

Mr. Burness thought the lecturer had been rather hard on the municipal schools in representing them as designed to crush out private effort. Before the passing of the last Act, the supply of secondary education was far below what it should be. The municipal school tapped a new source and gave a chance to the bright boy of poor parents. He did not think that private schools had suffered to the extent that the lecturer maintained. He knew of one cheap school which had been the means of providing a liberal education for nearly six hundred boys and girls who had no such opportunity before. It had taken less than a dozen pupils from neighbouring secondary schools. In large industrial centres there was great difficulty in persuading parents to allow their children to remain at school sufficiently long. Many municipal authorities were doing missionary work in this respect, but they had to contend with private undertakings which were run purely as a commercial business. Such an institution would issue a prospectus offering tempting advantages and rapid preparation for Civil Service and other examinations, with the result that parents were misled and wanted the boy or girl in the municipal school to leave about the age of fifteen. They did not understand that the institution which professed to give a liberal education and prepare a boy for his work in life in a very short period gave only an education of the very narrowest kind. That kind of private venture was doing harm to the cause of private education. With regard to the attitude of Local Education Authorities generally, he was under the impression that many of them were really helping existing secondary schools. The London County Council had given considerable help, and they did not open a new school in any district until it was imperatively needed.

Mr. Orchard thought the lecturer had shown that the Education Authorities of this country had not treated private schools fairly, but had discriminated between municipal and private schools to the great disadvantage of the community. Private schools were particularly suitable for a class whom the municipal school did not suit, and their destruction would inflict a great injury on the country. He could not agree with the lecturer's suggestion that different inspectors should be employed for private and municipal schools, as such an arrangement would shake public confidence in the genuineness of the reports and would not be found to work well in practice.

Miss Stevens said that Mr. Thornton had studied with great thoroughness the educational problems of the northern countries of Europe, but possibly he was not quite *au fait* with the progress that was being made at home. A great deal of experimental work was now being done, some of it being carried on in private schools with the sanction of the Board of Education, but it was not always easy to get accounts of what was being done. She had herself been engaged for many years in experimental work, and had always received the sympathy of the County Council and the Board of Education.

The Chairman said that Mr. Thornton for many years had rendered distinguished service by interpreting to British readers Scandinavian ideals in education. In popularizing a liberal form of higher instruction and training for young men and women, Denmark, followed by Norway, Sweden, and Finland, had achieved striking success by giving public aid and official recognition to strenuous private enterprise. In the sphere of secondary education the four countries gave State aid to numerous private schools of recognized efficiency, thus combining in a national system the stability of public institutions with the variety of private initiative. Scandinavian experience taught the lesson that, in a system of national education, it is not only possible but wise to make large use of the energy and zeal of private-school masters, careful guarantees being taken as to school hygiene, teaching skill, range of studies, and adequate payment of subordinates. Such recognition implied State inspection and conformity with requirements imposed by the Government. In England, neither the Board of Education nor the Local Authorities claimed monopoly of educational supply. In few countries was private effort in education more extensive than in our own. As, however, the sphere of public effort in education widened its range and the normal standard of equipment and of staffing became more costly, many private schools which had rendered useful service to the community, and with encouragement were capable of continuing to do so, found themselves in a position of grave anxiety. The maintenance of efficient private enterprise in education was valuable to the community. It provided alternative courses of training for children whose parents, for one reason or another, were dissatisfied with what was given in the publicly managed schools.

It multiplied points of educational initiative. In some cases it led to valuable experiment in methods of teaching. It afforded opportunities of congenial service to those teachers who worked more happily in responsible charge of their own schools than as assistant teachers in an elaborately organized public system. Education was too closely connected with matters of private conviction and of individual preference to be brought wholly under the direct control of public bodies. On the other hand, the State, in self-defence, was bound to assure itself (to a degree at present not fully secured) of the sanitary fitness of private-school premises, of the regular attendance of the pupils, and of the qualifications of the teachers to discharge the duties which they undertook. National education was more fitly regarded as a synthesis of schools under various kinds of management than as the monopoly of the State or of a Local Authority. There would always be room and need for private schools for children of all ages. The great majority of these schools would not ask or need public subsidy; but in the public interest they ought all to be subject to a form of inspection which, while sufficiently searching, need not be deterrent or exacting. The chief point of administrative difficulty lay not in the granting of recognition, but in deciding the conditions upon which aid from public money might be given to certain private secondary schools, which, with such aid, would virtually form part of the public supply of the district. Compared with the total number of private schools, the cases in which such public aid was expedient were not numerous, but important. Such aid, so far as rates were concerned, was allowed by law, and, so far as Treasury grants were concerned, were only forbidden by departmental regulation which a Minister could alter at any time. He suggested that, where aid was so given from public moneys to a recognized private school drawing its pupils from the neighbourhood, the head master should be required (*a*) to have the school regularly inspected by the Board of Education in order to guarantee its continued efficiency, (*b*) to submit its scale of fees for the approval of the Local Authority, and (*c*) to admit scholars and other pupils nominated by the Local Authority, subject to their industry and good behaviour. In return for these guarantees, the school might be recognized as, for the time being and for a period of years sufficient to justify capital outlay, part of the efficient local supply of secondary education. An annual grant might be given to it with a view to securing adequacy of teaching staff. In some cases scientific apparatus and other educational equipment might be lent to it by the Local Authority. Local scholarships might be allowed to be held at the school, and the cost (if any) of periodical inspection by the Government might be defrayed. In this way, without any capital expenditure of public funds upon private property, the educational efficiency of the school could be guaranteed, and some otherwise inevitable expenditure on the part of the Local Authority might be avoided.

Mr. Thornton having replied to the different speakers, a vote of thanks to the lecturer concluded the proceedings.

REVIEWS.

Scottish Education.

(1) *A History of Secondary Education in Scotland.* An Account of Scottish Secondary Education from Early Times to the Education Act of 1908. By John Strong, M.A., F.R.S.E. (7s. 6d. net; Student's Edition, 5s. net. Clarendon Press.)
(2) *Scottish Education:* School and University from Early Times to 1908. By John Kerr, M.A., LL.D. (6s. net. Cambridge University Press.)

Mr. Strong is the Rector of the Montrose Academy. His book is the development of a thesis of the same title accepted by the University of London for the M.A. degree. Dr. Kerr, a Cambridge graduate, was formerly Senior Chief Inspector of Schools and Training Colleges in Scotland. Both of these books are carefully and thoughtfully written and liberally produced. Unfortunately, there is necessarily a certain amount of common ground. It is a great pity that, with two able writers on such a subject as the history of Scottish education, the tasks could not have been more differentiated. Although Mr. Strong's book appeared first, yet it is not clear that it was the first undertaken. Dr. Kerr explains that in the year 1907, "when my task up to 1906 was within sight of completion, I was, unfortunately, seized with an illness which made absolute rest for some months imperative." Dr. Kerr claims "a close and practical acquantance with the school and University life of both Scotland and England for more than fifty years." Accordingly, for the modern developments of education on the legislative, administrative, and organized sides, his book is, undoubtedly, of the highest authority and will be read with deep interest. Mr. Strong's book can hardly claim to be the outcome of such long and varied experience. On the other hand, in some of the questions arising in the History of Education, he has evidently given much study and thought to research in the subject, and his book will be eagerly sought by the specialist students of educational history.

The fact is, of course, there is not only room, but a high degree of want, for a book which might have combined both these works without necessarily occupying all the pages of both or costing the price of both. Certain aspects of the subject have been provided for before. James Grant's important "History of the Burgh Schools of Scotland," published in 1876, is not likely to be superseded in the treatment of the manifold questions of organization and administration. All writers on the history of Scottish education must turn to Grant's laborious work for light on the patronage and constitution of schools, the protection, visitation, and examinations of schools. Grant has also analysed the orders and statutes as to prayers, speaking Latin, holidays, games, discipline, prizes, and the general school economy. He has given the history of arrangements — the appointment of masters, tenure of office of masters, removal of masters from office, honours and recognition of masters; he has treated of the master as a pluralist; he has traced the history of compulsory education in Scotland, the forms of school government, studies in the schools, the questions of salaries, fees and emoluments, school buildings, and has given a short sketch of girls' education. On many of these points Mr. Grant's book is a standard work for the historian of education generally, and is indispensable for that of Scotland. Accordingly, we find both Mr. Strong and Dr. Kerr rightly acknowledging their indebtedness to Mr. Grant, and, for the particular subject of the history of Burgh Schools in Scotland, Mr. Grant's work remains the chief authority. Another work which cannot be said to be superseded by the two new books is Prof. Edgar's "History of Early Scottish Education." This account of early education closes with the Renascence times, including a description of Knox's work for education, Loyola and the Jesuits, and foreign movements generally as well as in Scotland. About a quarter of Mr. Strong's book is taken up with this part of the subject. Dr. Kerr has not a great deal of common ground with Prof. Edgar.

Dr. Kerr's history is considerably longer and more comprehensive than that of Mr. Strong. His, therefore, seems to be the better general account, including, as it does, elementary, secondary, and University education. The account of secondary schools in Mr. Strong's work is more detailed, and shows evidence of earnest and independent research. The chapters on the Parish School, 1600–1872, and on the Burgh or Grammar School, 1600–1872, are particularly valuable. Mr. Strong, for instance, gives in full the orders for the parish school of Dundonald in Ayrshire drawn up as long ago as 1640. The learning of Latin in the parish schools throughout the country gives to them the recognition of secondary education. Similarly Mr. Strong reproduces the regulations for the government of, and subjects of teaching in, the Grammar School of Peebles in 1649. He also cites the regulations regarding "visitations" of the Grammar School at Aberdeen made by the Town Council of that city in 1659. A full account is also offered of the curriculum of the Perth Academy, the first of its kind, opened in 1761. Mr. Strong also cites in full, as an appendix, from the "Miscellany of the Spalding Club," Vol. V (pages 399–402), the statutes and laws of the Grammar School (*ludus literarius*) of Aberdeen, though a date should have been indicated. Mr. Strong's chapter on Pre-Reformation studies is very interesting and gains much in value by quotation of original passages from James Melville's diary (under the date 1561–8) regarding the course of instruction in a parish school outside of Montrose and from Erasmus (about 1510) respecting the studies of Alexander Stewart, son of James IV.

Dr. Kerr, in his more carefully arranged division into periods, deals with the extremely interesting details of Scottish University history. He mentions the Scots college in Paris University and the Scots "Nation" in the University of Padua, and it is a pity that he does not tell us more of these. The account of the early history—*i.e.*, up to 1560—of the Scottish Universities brings in many great names of learning, and shows the development of administration and organization on monastic lines in the first place. Dr. Kerr's second period (1560–1696) deals with the growth of Burgh and Parish Schools, with the great Book of Discipline, with the growth of the professorial system in the Universities, and the development of medical studies. This period includes interesting accounts of John Knox, Andrew Melville, Thomas Dempster (the wandering scholar), and founders of colleges. The third period (1696–1872) introduces us to Heriot's and the Merchant Company Schools, the S.P.C.K.

Schools, the General Assembly and Sessional Schools, Stow and the training of teachers, as well as the course of University history. The fourth period (1872–1908) deals with primary and other schools, Code changes, S.P.C.K. Schools, training colleges, secondary schools, and Universities.

The educational system of Scotland is recognized by all students of education to be a specially national product and to be worthy of particular study. No way of approaching its study can be more suitable than by considering the gradual evolution of the organization in response to growing needs of the community. It is therefore particularly valuable to have a book which deals with the development of *all* grades. Dr. Kerr states that his aim has been to afford "an impressionist or bird's-eye view" of the whole subject. The result is undoubtedly a real success and should appeal to all Scotch educationists—and very many outside Scotland. Mr. Strong's book, painstaking and judicious in its history of secondary education, may be regarded as supplementing what Dr. Kerr has to say on that portion of the subject, whilst it avoids the multiplicity of detail of Mr. Grant's book, which (to emphasize finally the point) still remains the chief reference book for the history of the Burgh Schools of Scotland.

Nature Study.

The Book of Nature Study. Edited by J. Bretland Farmer, M.A., D.Sc. Oxon., F.R.S., Professor of Botany in Royal College of Science, London, assisted by a staff of specialists. In six volumes. (7s. 6d. net each. Caxton Publishing Company.)

The educational value of Nature study is being recognized more and more, and the subject has in recent years made considerable progress in elementary and other schools. The chief difficulty in teaching it lies not so much with the pupils or with the subject-matter, but rather with the teacher. "A principal object, which should never be lost sight of," says Prof. Farmer, "is the stimulation of the power of independent inquiry and observation on the part of the children themselves. It is of little or no use for the teacher to attempt to *teach* it. The objects themselves should be the teachers, and the business of the school master or mistress really lies in explaining to the pupils the rules of the game. Nature only speaks to those who know how to listen and how to question, but those who have once learnt this lesson have thereby obtained possession of a key to knowledge that will fit many locks and disclose the secrets of many mysteries." Teachers may have various weaknesses, but it is only one possible weakness that Prof. Farmer aims in these volumes to remedy—namely, ignorance of the subject. Information has to be sought in so many different places, and it is not always available in easily accessible form. The present work is intended to supply substantially all the necessary information in simple and attractive form, with no avoidable technicalities. "It is a book written for teachers by those who are not only well known scientists but themselves experienced teachers." There are ten of them, all bearing names that guarantee the competence of their work.

Volume I is opened by Prof. J. Arthur Thomson with a brief and pointed exposition of "certain general themes which must form part of the intellectual background of successful Nature study in the field of animal life." He sets out the chief questions that the naturalist asks, and offers suggestions likely to be most helpful in drawing out such partial answers as are at present possible, and in leading to an understanding of the method of arriving at them. Then, other writers treat of the characteristic features of the mammals, birds, reptiles, fishes, insects, &c., their life history and their modifications by environment, and their general significance in the scheme of Nature. Volume II continues and completes the description of insects, spiders, worms, &c., and deals very fully with the Aquarium—freshwater and marine—special attention being directed to the demonstration of the interdependence of plants and animals in Nature. The concluding chapter indicates briefly and efficiently how the distribution of animals of various kinds of haunts may be brought within the scope of reasonable Nature study. Volume III is concerned with plant life, and then with some common flowering plants of spring and early summer: "the commonest and most familiar plants are, in many ways, the best to use" for lessons. Volume IV continues and concludes the handling of flowering plants, and then discourses on ferns, mosses, fungi, and lichens, with three final chapters on the vegetation of woodlands, commons, heaths, and moors. Volume V treats of the vegetation of the seashore, of water (salt and fresh), of meadows and pastures, including weeds. Half-a-dozen chapters are devoted to the school garden, which is, by the way, not so very modern an idea; it goes back at least as far as Comenius and Fraucke, and was fostered by Rousseau, Pestalozzi, and Froebel. Austria is said to have more than eighteen thousand school gardens, and, "though not to the same extent as in Austria, the school garden has firmly established its position as a valuable educational instrument in Germany, France, Switzerland, Sweden, and Russia." The very full and simple treatment here given by an experienced writer will be most helpful. The final section of the volume, on the work of the soil, is valuable in information and in suggestion. Volume VI handles the physical environment—the influences of the weather and the geological aspects. Such is a very brief and compendious indication of the variety of subjects expounded in the half-dozen volumes. They form a handy and trustworthy library for the teacher, who will be greatly fortified by the perusal of them, and by reference in cases of need. They are most liberally supplied with illustrations, the type is generous, and the get-up is tasteful and serviceable.

The English Constitution.

A Constitutional History of England. By A. M. Chambers. (6s. Methuen.)

This volume discusses the main features of the growth of the English Constitution. Commencing by stating and criticizing the various theories of the origin of Teutonic institutions, the author passes on to describe Saxon organization. Saxon tenures were mainly three—Folkland, Bookland and Laen or Loan land. Concerning the origin of the thegn, Prof. Little's opinion is quoted with approval—that, whereas the gesith was the companion of the king, the thegn was originally a minister or servant in the royal household. Feudalism receives adequate treatment, particularly the sections on Status and Alienation. Miss Chambers emphasizes the fact that lawyers from Glanvill to Blackstone gave a false impression of "Villeinage." The lawyers wished to force English Villeinage into the mould of Roman Slavery. But the villein was in many ways recognized by the law as a member of the commonwealth, and custom, more potent than law, enhanced his position.

With regard to the Manor, "the presence of both classes—*i.e.*, villeins and freeholders—was usual," but "not essential," and manors are found composed entirely of either one class or the other. But, as Dr. Holdsworth points out, at least two freeholders were probably essential to the right of holding a manorial court. The development of the Cabinet is very clearly traced. Interesting facts are adduced to illustrate the irregular growth of the Privy Council. When dealing with the question of Writs of Summons to the House of Lords, it might have been pointed out, in the section on Baronies, that, when once a man had been created a Baron by Writ of Summons, a "personal dignity" was created, which survived in spite of the alienation of the baronial lands. Further, that this "personal dignity" was created transmissible through females and could be resuscitated after lying in abeyance for several generations (as in the case of Mrs. Otway-Cave, Baroness Braye, 1839).

Criticizing Bagehot's remarks on the action of the House of Lords in Lord Wensleydale's case, the author holds that, in refusing seats in the Upper House to life peers, "there is much to be said for the view of the case taken by the Lords themselves." Is the statement that "Nonconformist clergymen can sit (in the House of Commons) so long as they do not hold a cure of souls" properly expressed? If so, the law must be a dead letter so far as the present Parliament is concerned, for there is at least one Nonconformist clergyman who retains his "cure" and has a seat in the House of Commons. It need scarcely be pointed out that Mr. McKenna was not responsible for the Education Bill of 1902, as stated on page 340. The plan and get-up of the book are excellent. The subject is treated as exhaustively as space will permit, and the materials are taken from authoritative sources. Well up to date in scope and method, the volume occupies a position between such works as "Taswell-Langmead" and Sidney Low's "Governance of England." The proofs of the earlier chapters seem to have been carelessly revised, for the punctuation is very erratic, sometimes obscuring the sense. There is a tolerably complete index, but we miss a bibliography. The book will be most helpful to Intermediate students in Laws and Arts, while the ordinary reader cannot do better than add it to his library.

(*Continued on page* 242.)

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(*Continued on page* 244.)

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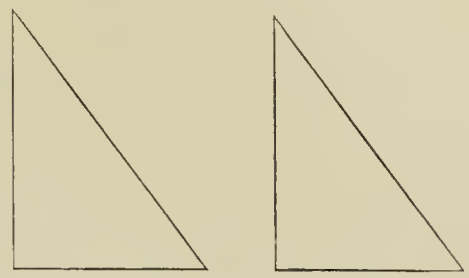
MATHEMATICS.

16526. (V. DANIEL, B.Sc.)—How should a right-angled triangle be drawn to comply with the specification: "As remote as may be from an isosceles triangle"?

Note by the PROPOSER.

Does the eye judge of departure from isoscelism by such conditions as $c-b=b-a$, or $c/b=b/a$?



COLLEGE OF PRECEPTORS BLOOMSBURY SQUARE

The first gives $A=\tan^{-1}\frac{3}{4}$. $A=36°\,52'$, $B=53°\,8'$.
The second gives $\sec A=\cot A$. $A=38°\,10'$, $B=51°\,50'$ (*vide figures*).

16843. (*Communicated by* F. COTTRELL.)—Prove that

$$d^n/dx^n\,(x^n\sin x)=n!\,(P\sin x+Q\cos x),$$

where
$$P=1-{}^nC_2\frac{x^2}{2!}+{}^nC_4\frac{x^4}{4!}-\ldots,$$

and
$$Q={}^nC_1x-{}^nC_3\frac{x^3}{3!}+{}^nC_5\frac{x^5}{5!}-\ldots.$$

Solution by A. M. NESBITT, M.A., *and* R. S. CAPON.

We have, by Leibnitz,

$$\frac{d^n}{dx^n}(x^n\sin x)=(d_1+d_2)^n(x^n\sin x)$$

(wherein d_1 applies only to x^n and d_2 only to $\sin x$)

$$=(d_1{}^n+nd_1{}^{n-1}d_2+\ldots)(x^n\sin x)$$

$$=n!\sin x+n\cos x\frac{n!}{1!}x-{}_nC_2\sin x\frac{n!}{2!}x^2-{}_nC_3\cos x\frac{n!}{3!}x^3+\ldots$$

$$=n!\left\{\sin x\left(1-{}_nC_2\frac{x^2}{2!}+{}_nC_4\frac{x^4}{4!}-\ldots\right)\right.$$
$$\left.+\cos x\left({}_nC_1\frac{x}{1!}-{}_nC_3\frac{x^3}{3!}+\ldots\right)\right\}.$$

10328. (R. W. D. CHRISTIE.)—Euler has demonstrated that $2^m(4N+1)$, where $(4N+1)$ is a prime, may be resolved into two integral squares. Extend the theorem to show that $(r^2+1)^m(4N+1)=$ two integral squares.

Additional Solution by JAMES BLAIKIE, M.A.

This depends on the well known theorem

$$(a^2+b^2)(c^2+d^2)=(ab+cd)^2+(ac-bd)^2=(ab-cd)^2+(ac+bd)^2=A^2+B^2.$$

Similarly $(a^2+b^2)^2(c^2+d^2)=(a^2+b^2)(A^2+B^2)=C^2+D^2=\ldots.$

Hence the theorem:—If $4N+1=c^2+d^2$, $(r^2+s^2)^m(4N+1)=X^2+Y^2$, a more general form than the one proposed in the question.

16825. (J. C. SWAMINARAYAN, M.A.)—Show that

$$\int\cot^{-1}(x^2-x+1)\,dx$$
$$=(x-\tfrac{1}{2})\cot^{-1}(x^2-x+1)-\tfrac{1}{2}\sin^{-1}\left\{\frac{2x-1}{\sqrt{[(x^2-x+1)^2+1]}}\right\}$$
$$-\sinh^{-1}\left\{\frac{2x-1}{2\sqrt{[(x^2-x+1)^2+1]}}\right\}$$

Solution by F. G. W. BROWN, B.Sc., L.C.P.

Let $u=x^2-x+1=\frac{1}{4}\{(2x-1)^2+3\}$;

therefore $dx=\dfrac{du}{\sqrt{(4u-3)}}$;

therefore $I=\displaystyle\int\cot^{-1}u\,dx=\int\frac{\cot^{-1}u\,du}{\sqrt{(4u-3)}}$

$$=\tfrac{1}{2}\sqrt{(4u-3)}\cot^{-1}u-\int\left[-\frac{1}{1+u^2}\int\frac{du}{\sqrt{(4u-3)}}\right]du$$

$$=(x-\tfrac{1}{2})\cot^{-1}(x^2-x+1)+\int\frac{\sqrt{(4u-3)}}{2(1+u^2)}\,du.$$

Now $\int \frac{\sqrt{(4u-3)}}{2(1+u^2)}\,du = \int \frac{(4u-3)\,du}{2(1+u^2)\sqrt{(4u-3)}}$

$$= \int \frac{(2u+1)\,du}{2(1+u^2)\sqrt{(4u-3)}} + \int \frac{(u-2)\,du}{(1+u^2)\sqrt{(4u-3)}}.$$

Put $$y = \sqrt{\left(\frac{4u-3}{1+u^2}\right)};$$

therefore $$du = -\frac{\sqrt{[(1+u^2)^3(4u-3)]}\,dy}{(2u+1)(u-2)},$$

and the integrals, on reduction, become

$$-\tfrac{1}{2}\int \frac{dy}{\sqrt{(1-y^2)}} - \int \frac{dy}{\sqrt{(1+\frac{1}{4}y^2)}}$$

$$= -\tfrac{1}{2}\sin^{-1} y - \sinh^{-1}\tfrac{1}{2}y$$

$$= -\tfrac{1}{2}\sin^{-1}\left\{\frac{2x-1}{\sqrt{[(x^2-x+1)^2+1]}}\right\} - \sinh^{-1}\left\{\frac{2x-1}{2\sqrt{[(x^2-x+1)^2+1]}}\right\}.$$

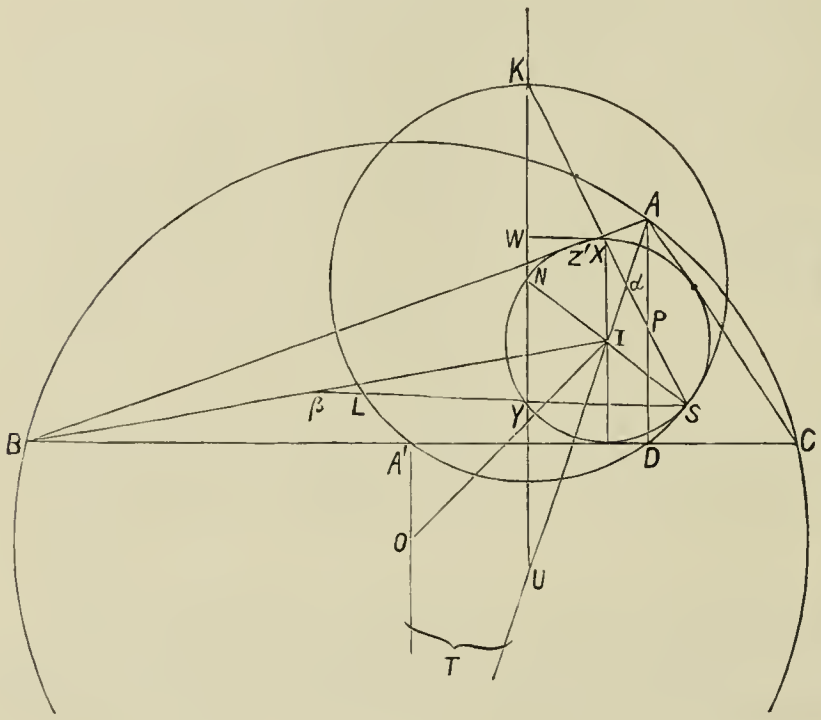
Some Results depending on the Proof of Feuerbach's Theorem which appeared in the "Educational Times," for April, 1910. (See also *Reprint*, New Series, Vol. XVIII, p. 80.)

By Mr. W. F. Beard, M.A.

(i) KXS, LYS, MZS bisect IA, IB, IC respectively.

(ii) If α, β, γ are the mid-points of IA, IB, IC, then

$$I\alpha/\alpha X = I\beta/\beta Y = I\gamma/\gamma Z.$$



(iii) $S\alpha$, $S\beta$, $S\gamma$ cut off from the corresponding altitudes lengths equal to the in-radius.

(iv) $S\alpha$, A'I meet on AD.

(v) If the in-circle touches the sides at X', Y', Z', the circles $\beta X'\gamma$, $\gamma Y'\alpha$, $\alpha Z'\beta$ pass through S.

(vi) The tangent from K to the in-circle = the projection of OI on AI.

(vii) An ellipse centre I touches the sides of a triangle ABC at X', Y', Z'; X'I, Y'I, Z'I meet the ellipse again at X, Y, Z; IA, IB, IC are bisected at α, β, γ. Then $X\alpha$, $Y\beta$, $Z\gamma$ meet at a point on the ellipse.

(i) AI.IT = 2Rr; therefore $\alpha I/IX = OT/TI$ and $\angle \alpha IX = \angle OTI$; therefore triangles αIX, OTI are similar; therefore $\angle \alpha XI = \angle OIT = \angle XKW$ [from proof of Feuerbach's theorem]; therefore $KX\alpha$ is a straight line.
Thus KXS bisects IA, similarly for IB, IC.

(ii) From the similar triangles αIX, OTI,
$I\alpha/\alpha X = OT/OI = R/OI =$ similarly $I\beta/\beta Y = I\gamma/\gamma Z$.

(iii) Because $A\alpha = \alpha I$; therefore AP = IX = r = similarly BQ = CR.

(iv) It is a well known theorem that A'I cuts off from AD a length r; therefore A'I, $S\alpha$ meet at P.

(v) From (i) β lies on SL; therefore $\angle \beta S\alpha$ is the same as $\angle XSY$, and therefore $= 90° - \frac{1}{2}C$ [from proof of Feuerbach's theorem]; but because α, β are the mid-points of IA, IB, and IZ' is perpendicular to AB, and therefore perpendicular to $\alpha\beta$;
therefore $\angle \alpha Z'\beta = \angle \alpha I\beta = 90° + \frac{1}{2}C$;
therefore $\angle \beta S\alpha + \angle \alpha Z'\beta = 180°$;
therefore the circle $\alpha Z'\beta$ goes through S,
and similarly for $\beta X'\gamma$ and $\gamma Y'\alpha$.

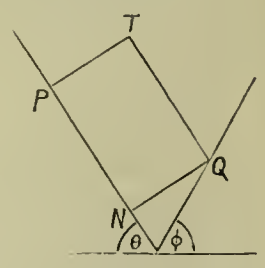
(vi) $KX.KS/KX^2 = KS/KX = NS/NI = R/(R-2r) = R^2/(R^2-2Rr)$
$= OT^2/OI^2 = I\alpha^2/\alpha X^2$ [from (ii)] $= UI^2/KX^2$,
because IX is parallel to UK. Therefore $KX.KS = UI^2$;
that is, the tangent from K to the in-circle = UI
= the projection of OI on AI.

(vii) This follows by orthogonal projection from theorem (i), in which $X\alpha$, $Y\beta$, $Z\gamma$ meet at S.

N.B.—It can also be easily shown that the projections of α, I on KU, A'T respectively lie on AX.

16842. (J. H. M.)—AB is the horizontal line of intersection of two slopes of elevations θ, ϕ. A ball is to be thrown with given velocity v from the former slope to land as high as possible on the other, the air resistance being supposed negligible. Show that the projection must be from a point in AB unless $2\theta + \phi > \frac{1}{2}\pi$. If this inequality is satisfied, show that the distance from AB that can be reached is $v^2/2g \cos\theta \sin(\theta+\phi)$ and find the corresponding level of projection.

Solution by Professor Nanson.



If $\phi + 2\theta = \frac{1}{2}\pi$, the direction of projection from a point O on AB for maximum range on the ϕ plane is perpendicular to the θ plane. If, then, $\phi + 2\theta > \frac{1}{2}\pi$, it is clear that we can get a greater range by going up the θ plane, but not so if $\phi + 2\theta < \frac{1}{2}\pi$. To find the proper position in the former case, observe that the greatest distance PT from the θ plane which can be reached is $v^2/2g \cos\theta$, and is attained in the time $v/g \cos\theta$ by projecting at right angles to the θ plane. This distance will be attained when the ball strikes the ϕ plane at Q provided the point of projection P is properly chosen, and will clearly give the maximum range $v^2/2g \cos\theta \sin(\theta+\phi)$ on the ϕ plane because PTQ is right.

Also $$OP = ON + QT$$
$$= -(v^2/2g \cos\theta) \cot(\theta+\phi) + \tfrac{1}{2}g \sin\theta\,(v/g\cos\theta)^2$$
$$= -(v^2/2g)\,[\cos(2\theta+\phi)]/[\cos^2\theta \sin(\theta+\phi)],$$

which determines the point of projection.

For this point to be above the ϕ plane, $\phi + 2\theta$ must be greater than $\pi/2$ as already shown.

16848. (C. M. Ross, B.A.)—If $a+b+c=0$, show that
$$\tfrac{1}{4}(a^4+b^4+c^4) = \tfrac{1}{8}(a^2+b^2+c^2)^2.$$

Solutions (I) *by* Lt.-Col. Allan Cunningham, R.E.;
(II) *by* A. M. Nesbitt, M.A., *the* Proposer, *and others;*
(III) *by* J. K. Heydon.

(I) This Question is practically a repetition of Question 16422, to find general solution of $(x^4+y^4+z^4)^2 = 2(x^8+y^8+z^8)$.
In the present writer's solution (in *Reprint*, Vol. XV, p. 49) it was shown that $z^2 = x^2+y^2$ gives the general solution. Taking $a = x^2$, $b = y^2$, $c = z^2$ gives $a+b+c=0$, and solves the present Question.

(II) Let a, b, c be roots of $x^3 + qx - r = 0$.
Then, plainly, $\Sigma a^4 + q\Sigma a^2 - r\Sigma a = 0$ or $\Sigma a^4 + q\Sigma a^2 = 0$.
But $\Sigma a^2 + 2q = 0$, whence the result follows.

(III) $$a+b+c = 0.$$
Squaring, $$a^2+b^2+c^2 = -2(ab+bc+ca),$$
squaring, $$a^4+b^4+c^4 = 2(a^2b^2+b^2c^2+c^2a^2) + 8abc(a+b+c).$$
Now $$8abc(a+b+c) = 0;$$
therefore, adding $a^4+b^4+c^4$ to each side,
$$2(a^4+b^4+c^4) = (a^2+b^2+c^2)^2.$$

11835. (Professor Orchard, M.A., B.Sc.)—Show that from a sphere of volume 65340000π can be formed ninety-nine sets of three, each consisting of a sphere, a cylinder, and a cone, such that the radii of the ninety-nine spheres shall be in arithmetical progression.

Solution by A. M. Nesbitt, M.A.

Nothing is said about the relative sizes of the three solids in a "set." But, if we take them of the same radius x, and assume that their respective volumes are $\frac{4}{3}\pi x^3$, πx^3, $\frac{1}{3}\pi x^3$, the sum of the volumes of this set is $\frac{8}{3}\pi x^3$. If, further, we assume as a working hypothesis that the radii are in arithmetical progression, first term x, common difference x, we have, since $\sum_1^{99} N^3 = (\frac{9900}{2})^2$,

$$(\tfrac{9900}{2})^2 \tfrac{8}{3}\pi x^3 = 65340000\pi,$$

which yields $x = 1$. Thus the radii of the spheres are 1, ... 99.

16758. (S. Andrade.)—If either $4ln > m^2$ or $4ac > b^2$, then

$$(2an+2cl-bm)^2 \not< (m^2-4ln)(b^2-4ac).$$

Solution by the Proposer.

Consider the expression

$$(ax^2+bx+c)/(lx^2+mx+n) \equiv y.$$

Then $$x^2(a-ly)+x(b-my)+c-ny \equiv 0;$$

therefore $(b-my)^2-4(a-ly)(c-ny)$ must be + or 0 for real values of x, *i.e.*, $(m^2-4ln)y^2+2(2an+2cl-bm)y+b^2-4ac \equiv \mathrm{E}$, say, must be + or 0. But, if $(2an+2cl-bm)^2-(m^2-4ln)(b^2-4ac)$ is −, then E has always the same sign, that of m^2-4ln, *i.e.*, supposing m^2-4ln is −, E is always − for real values of y, and this could only be true if there were no real values of x corresponding to real values of $(ax^2+bx+c)/(lx^2+mx+n)$, and this is clearly false. Therefore

$$(2an+2cl-bm)^2-(m^2-4ln)(b^2-4ac) \text{ cannot be } -.$$

16793. (Lt.-Col. Allan Cunningham, R.E.)—Show how to resolve $\mathrm{N} = (x^4+4y^4)$ into four factors algebraically for certain (integer) values of x, y. *Ex.*—Give one or more examples of $\mathrm{N} > 10^{20}$ completely resolved into prime factors.

Additional Solution by Professor Sanjána, M.A.

We have $x^4+4y^4 = \mathrm{A.B}$, where $\mathrm{A} \equiv x^2+2xy+2y^2$, $\mathrm{B} \equiv x^2-2xy+2y^2$. We can make A a difference of squares in an infinity of ways, and in any one of these B may also be made such a difference in an infinite number of ways, so that the number of solutions is doubly infinite.

Assuming $\mathrm{A} \equiv (x+2y)^2-2y(x+y) = (x+2y)^2-(2yk)^2$,

we get $$x+y = 2yk^2 \quad \text{or} \quad x = y(2k^2-1).$$

Then $$\mathrm{B} = y^2(4k^4-8k^2+5);$$

and we can make $4k^4-8k^2+5$ factorisable in as many ways as we please. For instance, as

$$4k^4-8k^2+5 = (2k^2+3)^2-4(5k^2+1),$$

we have to make $5k^2+1 = z^2$; this is satisfied by

$$k = 2l/(l^2-5), \quad z = (l^2+5)/(l^2-5),$$

whence $$x : y = 18l^2-l^4-25 : l^4-10l^2+25.$$

For such values of x and y, we shall obtain

$$\mathrm{N} = y^4(2k^2-2k+1)(2k^2+2k+1)(2k^2-2z+3)(2k^2+2z+3).$$

In particular, if we take the convergents to $\sqrt{5}$, we have

$$k = 4, 72, 1292, \ldots, \quad z = 9, 161, 2889, \ldots.$$

For $k = 72$, $x : y = 10367 : 1$; so that

$$10367^4+4.1^4 = 10513.10693.10049.10693.$$

For $k = 1292$, $x : y = 3338527 : 1$; and we get

$$3338527^4+4.1^4 = 3341113.3335945.3344309.3332753.$$

Again, assume $\mathrm{A} \equiv (x+3y)^2-y(4x+7y) = (x+3y)^2-(yk)^2$;

we have $$4x+7y = yk^2 \quad \text{or} \quad x = \tfrac{1}{4}y(k^2-7).$$

Then $$\mathrm{B} = \tfrac{1}{16}y^2(k^4-22k^2+137).$$

As $$k^4-22k^2+137 = (k^2-9)^2-4(k^2-14),$$

we have to make $k^2-14 = z^2$; this is satisfied by

$$k = l+7/2l, \quad z = l-7/2l,$$

whence $$x : y = 4l^4+49 : 16l^2.$$

For such values, we shall obtain

$$\mathrm{N} = \tfrac{1}{256}y^4(k^2-4k+5)(k^2+4k+5)(k^2-2z-9)(k^2+2z-9).$$

In particular, taking $l = 15$, we have

$$k = \tfrac{457}{30}, \; z = \tfrac{443}{30}; \quad x : y = 202549 : 3600;$$

and we deduce $202549^4+4.3600^4 = 158509.268189.174169.227329$.

Here $\mathrm{N} > 10^{21}$; and $158509 = 13.89.137$, 268189 is prime, $227329 = 281.809$, and 174169 is prime. Thus N is completely resolved.

We can similarly assume $\mathrm{A} \equiv (x+ry)^2-(yk)^2$, and hence find $x : y$. Substituting in B, we can determine k so as to exhibit B as a difference of two squares in an infinite number of ways for each one of the values of r.

16850. (A. H. S. Gillson.)—The normals at the points (ρ_1, α_1), (ρ_2, α_2), (ρ_3, α_3) on the cardioide $r = a(1+\cos\theta)$ are concurrent. Show that (1) if $\alpha_1+\alpha_2+\alpha_3 = 2\psi$, the locus of the point of concourse is a straight line, which makes an angle ψ with the initial line, and which for all values of ψ cuts the initial line at a distance $\frac{1}{2}a$ from the pole. (2) Prove that if $1/\rho_1+1/\rho_2+1/\rho_3 = n/a$, the locus of the same point is a conic passing through the pole, and having its centre on the initial line, this conic being an ellipse, parabola or hyperbola, according as $2n \lesseqgtr 9$; and, in particular, a rectangular hyperbola if $n = 9$.

Solution by R. F. Davis, M.A., *and* A. M. Nesbitt, M.A.

Denoting any point P on the cardioide by the parameter $t\,(\equiv \tan\frac{1}{2}\theta)$ the equation to the tangent at P is

$$(3t-t^3)y+(1-3t^2)x-2a = 0;$$

and the equation to the normal at P is

$$(1-3t^2)y-(3t-t^3)x+2at = 0.$$

Let the normals at t_1, t_2, t_3 co-intersect at (h, k); then

$$t_1+t_2+t_3 = 3k/h, \quad t_2t_3+t_3t_1+t_1t_2 = (2a-3h)/h, \quad t_1t_2t_3 = -k/h.$$

(1) $$\tan\psi = \tan\tfrac{1}{2}(\alpha_1+\alpha_2+\alpha_3) = \tan(\Sigma\tan^{-1}t_1)$$
$$= (\Sigma t_1-t_1t_2t_3)/(1-\Sigma t_2t_3) = k/(h-\tfrac{1}{2}a),$$

or $$k = \tan\psi\,(h-\tfrac{1}{2}a).$$

(2) $\Sigma(1+t_1^2) = 2n$; whence $9k^2-4ah = (2n-9)h^2$.

Mr. Nesbitt points out that this plainly passes through the pole and is symmetrical about the axis. Also it is a parabola if $2n = 9$, an ellipse if $2n < 9$, a hyperbola if $2n > 9$, and an equilateral hyperbola if $2n-9 = 9$, *i.e.*, if $n = 9$.

16812. (*Communicated by* C. M. Ross, B.A.)—Show that

$$\frac{1}{p+n}+\frac{n+1}{(p+n)(p+2n)}+\frac{(n+1)(2n+1)}{(p+n)(p+2n)(p+3n)}+\ldots\infty = \frac{1}{p-1},$$

if $p > 1$ and $p+n > 0$. (*Vide* C. Smith's *Algebra*, Ex. xxxiv, 12.)

Solution by Professor Escott *and the* Proposer.

The general term of the series may be written as the difference of two similar fractions, viz.:—

$$\frac{(n+1)(2n+1)\ldots[(r+1)n+1]}{(p+n)(p+2n)\ldots[p+(r+1)n]}-\frac{(n+1)(2n+1)\ldots(rn+1)}{(p+n)(p+2n)\ldots(p+rn)}$$
$$= (1-p)\frac{(n+1)\ldots(rn+1)}{(p+n)(p+2n)\ldots[p+(r+1)n]}.$$

Writing each term of given series as the difference of two fractions, the sum of $(r+1)$ terms is

$$\frac{1}{p-1}\left[1-\frac{(n+1)(2n+1)\ldots[(r+1)n+1]}{(p+n)(p+2n)\ldots[p+(r+1)n]}\right]$$
$$= \frac{1}{p-1}\left[1-\left(1-\frac{p-1}{p+n}\right)\left(1-\frac{p-1}{p+2n}\right)\ldots\left(1-\frac{p-1}{p+(r+1)n}\right)\right].$$

Since each of the terms in the product is <1 and the factors are decreasing, the limit when $r = \infty$ is 0. Therefore, the sum of the series is $1/(p-1.)$

Mr. A. M. Nesbitt, M.A., gives the solution in the following form:—

Denote $$(p+n)(p+2n)\ldots[p+(r-1)n](p+rn)$$

by $f(r)$; and let $\phi(r)$ be the value of $f(r)$ when p is put $= 1$; so that the r-th term on left-hand side is $\phi(r-1)/f(r)$. Now this is plainly equal to $$[\phi(r-1)/f(r-1)-\phi(r)/f(r)]/(p-1).$$

The required result follows at once, the given conditions being obviously sufficient to secure the convergency of the proposed series.

QUESTIONS FOR SOLUTION.

16878. (D. Biddle.)—A smooth plane surface is inclined at an angle of 30° to the vertical. AB is a horizontal line upon it of length c. A pliable cord, of length l, having a weight readily movable upon it, is attached at one end to A and at the other end to C, a point vertically over B, at a distance a. Find the position of the weight when at rest on the (resisting) surface, provided $l^2 \not< a^2+c^2$.

16879. (William J. Gee.)—A centrifugal machine is rotating at a speed of 200 feet per second peripheral velocity. Weight of contents of drum 1500 lb., size of drum 3 feet diameter by 4 feet 6 inches long, internal measurements. The effect of rotation is to cause solid particles suspended in water to settle out or deposit on the inner periphery of drum. The result is evidently precisely similar to the deposition of solids in quiescent settling in a settling or decantation tank, but deposit is much more quickly obtained, because the centrifugal force generated by rapid rotation is more efficient than gravity. Required a formula for calculating the separating effect in "gravities" in the same way as the effect in air compressing machinery is given in "atmospheres." [Note.—This problem was, in the first instance, kindly communicated to us by Mr. J. H. S. Russell.—Ed.]

16880. (A. S. Davis.)—A large number n of dots are distributed at random over the surface of a sphere. To find the probability that there will be a circle, of area $1/m$th the area of the sphere, *somewhere* upon it which will be entirely void of dots. The area of the circle is to be taken large enough to make the probability in question very small. [Note.—The problem suggested itself owing to peculiarities noticed in the distribution of the perihelia of unclosed cometic orbits projected on a sphere about the Sun.]

16881. (T. W. Chaundy.)—2^n persons compete in a chess tournament, no two of them being of equal skill. It is played off in n rounds,

the winners in one round drawing lots to pair off for the next round. If each game goes to the better of the pair of players, what is the chance of any specified player (*e.g.*, the pth best player) reaching the final?

16882. (D. Edwardes, B.A.)—Express

$$\int_0^1 u^{\gamma-1}(1-u)^{-\frac{1}{2}}(1-ux)^{\alpha+\beta-\gamma}\,F(2\alpha,\ 2\beta,\ 2\gamma,\ ux)\,du$$

as the product of two hypergeometric series, to a factor *près*.

16883. (Lt.-Col. Allan Cunningham, R.E.)—Let

$$N_1=\frac{x_1^3\sim y_1^3}{x_1\sim y_1},\quad N_2=\frac{z_2^3+x_2^3}{z_2+x_2},\quad N_3=\frac{z_3^3+y_3^3}{z_3+y_3},\quad N_4=\frac{x_4^4+y_4^4+z_4^4}{x_4^2+y_4^2+z_4^2}.$$

Let $N_1'=\dfrac{x_1'^3\sim y_1'^3}{x_1'\sim y_1'}$, $N_2'=\dfrac{z_2'^3+x_2'^3}{z_2'+x_2'}$, $N_3'=\dfrac{z_3'^3+y_3'^3}{z_3'+y_3'}$, $N_4'=\dfrac{x_4'^4+y_4'^4+z_4'^4}{x_4'^2+y_4'^2+z_4'^2}$.

Show that certain numbers N, of common occurrence, both prime and composite can, under certain simple conditions, be expressed in all the following forms at once, so that

$$N=N_1=N_2=N_3=N_4=\tfrac{1}{3}N_1'=\tfrac{1}{3}N_2'=\tfrac{1}{3}N_3'=\tfrac{1}{3}N_4'.$$

16884. (J. J. Barniville, B.A., I.C.S.)—Resolve

$$x^6-x^5+x^4-x^3-x^2-x+1$$

into two cubic factors. If $u_n+u_{n+1}=u_{n+3}$, prove that

$$u_n^2+u_{n+2}^2+u_{n+6}^2=u_{n+1}^2+u_{n+3}^2+u_{n+4}^2+u_{n+5}^2,$$

and

$$u_n^2+u_{n+7}^2=2u_{n+4}^2+2u_{n+5}^2.$$

16885. (Professor E. B. Escott.)—Show that the sum of the series

$$1/a_1+1/a_1a_2+1/a_1a_2a_3+\ldots,$$

where $a_2=a_1^2-2,\quad a_3=a_2^2-2,\quad \ldots,$

is $\frac{1}{2}[a_1-\sqrt{(a_1^2-4)}$, when $a_1\geqslant 2$.

(Note.—This furnishes one of the most rapid methods of finding the square root of a number to a large number of decimal places. Ex. —Let $a_1=6$,

$$1/6+1/(6.34)+1/(6.34.1154)+1/(6.34.1154.1331714)+\ldots=3-2\sqrt{2}.$$

Four terms of this series will give $\sqrt{2}$ to 23 decimal places, five terms to 48 decimal places, &c.)

16886. (Professor Neuberg.)—On donne une droite a et deux points B, C non situés dans un même plan avec a. A étant un point quelconque de a, on mène en B un plan β perpendiculaire à la droite AC et en C un plan γ perpendiculaire à la droite AB. Trouver la surface engendrée par l'intersection des plans β et γ.

16887. (M. T. Naraniengar, M.A. Suggested by Question 16778.) —If from the points of contact of three concurrent tangents to (1) a cardioide, (2) a tricusp, three other tangents are drawn, these tangents concur at a point.

16888. (A. H. S. Gillson.)—Show that, for the curve $r=a\tanh\theta$, (1) the p and r equation is $r^4(a^2-p^2)=a^2p^2(a^2-r^2)$; (2) it has a point of inflexion at $r=a\sqrt{2}$, and find the conditions for concavity and convexity to the pole; (3) it has an asymptotic circle $r=a$; (4) the radius of curvature at any point is given by $\rho=r^6/[p^3(2a^2-r^2)]$, and if ρ_1 be the radius of curvature at the origin, ρ_2 that at an apse, $\rho_2=2\rho_1$; (5) the area of the curve measured from the initial line is $\frac{1}{2}a(a\theta-r)$, so that area of portion between initial line and apse is $\frac{1}{2}a^2(\theta-1)$. (6) Sketch the curve.

16889. (S. Narayana Aiyar.)—If a conic inscribed in a triangle passes through two points which are isogonal conjugates with respect to the triangle, then the tangents to this conic at these points intersect either in the in-centre or in one of the ex-centres of the triangle.

16890. (Professor Sanjána, M.A.)—From any point on a fixed normal of a parabola two normals are drawn to the curve; find the locus of the pole of the chord joining their feet.

16891. (R. F. Davis, M.A.)—O is a given point and XY a given line both outside a given circle. Show how to draw through O a straight line meeting the circle in P, Q and XY in R, so that OP = QR.

16892. (F. G. W. Brown, B.Sc., L.C.P.)—Having given the radii r_1, r_2, r_3, of the three ex-circles of a triangle, show that

$$4R=[(r_2+r_3)(r_3+r_1)(r_1+r_2)]/(r_2r_3+r_3r_1+r_1r_2),$$

where R is the circum-radius. Hence find the sides of the triangle, and test the solution when $r_1=21$, $3r_2=35$, $r_3=36$.

16893. (W. Gallatly, M.A. Suggested by Question 16418.)—If P be a point $(\alpha'\beta'\gamma')$ and O the circum-centre, then OP is perpendicular to $\alpha/\alpha'+\beta/\beta'+\gamma/\gamma'=0$, the trilinear polar of P, if P lies on the cubic $(a\ \alpha)(b\beta-c\gamma)+\ldots=0$, or in barycentric co-ordinates,

$$a^2yz(y-z)+\ldots=0.$$

Show that H, I, K lie on this curve, so that

(1) OH is perpendicular to $\alpha\cos A+\ldots=0$,
(2) OI ,, $\alpha+\beta+\gamma=0$,
(3) OK ,, $\alpha/a+\ldots=0$.

16894. (Sonti V. Ramamurty, B.A.)—A′B′C′ is the polar triangle of a spherical triangle ABC. BC′, B′C cut at R; CA′, C′A at S; AB′, A′B at T. Show that triangles ABC, RST are in perspective. What relation does the centre of homology of ABC and RST bear to the triangle ABC?

16895. (Professor Nanson.)—If

$$\sin\alpha\sin\beta\sin\gamma=\sin\alpha'\sin\beta'\sin\gamma'\quad\text{and}\quad\alpha+\beta+\gamma+\alpha'+\beta'+\gamma'=\pi,$$

show that $(\sin\beta\sin\gamma)/[\sin(\alpha'+\beta)\sin(\alpha'+\gamma)]+\ldots+\ldots=1.$

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

10880. (Professor Ramaswami Aiyar.)—The successive angles of a plane polygon are given as well as the sum of the sides multiplied by certain constants respectively. Show that the area is a maximum when there exists a point in the figure whose distances from the sides are proportional to the corresponding constants. [When the constants are all equal, this becomes a theorem given by Professor M'Cay.]

11166. (Professor Morel.)—Construire géométriquement un triangle, connaissant la hauteur partant du sommet A, la bissectrice partant du sommet B et la médiane partant du sommet C.

11436. (R. A. Roberts, M.A.)—Two parallel planes conjugate with respect to a sphere attract according to the law of the inverse cube of the distance, and a particle is constrained to move on the sphere under the action of these forces with a velocity equal to infinity. Show that the orbit lies on a quadric surface.

11615. (Professor Sylvester.)—If a function of the elements of a given matrix remains unaltered, by whatever other unit matrix of like order the given one is multiplied, prove (1) that such function is a function of the determinant of the given matrix; and (2) extend the theorem to a system of any number of matrices of the same order. [As, *e.g.*, if F (a, b, c, d) = F(A, B, C, D), where

$$(A/C)(B/D)=\begin{matrix}\alpha & \beta\\ \gamma & \delta\end{matrix}\cdot\begin{matrix}a & b\\ c & d\end{matrix},$$

α, β, γ, δ being arbitrary, except that $\alpha\delta-\beta\gamma=1$, then

$$F(a, b, c, d)=\phi(ad-bc).]$$

12281. (W. J. Greenstreet, M.A.)—If the centre of a hyperbola be on one of the equi-conjugate diameters of an ellipse, the axes of the ellipse must be tangents to the hyperbola, and the asymptotes of the hyperbola must be tangents to the ellipse.

12344. (Professor Morley.)—When the curve $y^2=4x^3-g_2x-g_3$ is bipartite, prove that the area of the oval is $\frac{2}{5}(3g_3\omega_1-2g_2\eta_1)$, Weierstrass's notation being used.

NOTICE TO CORRESPONDENTS.

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, April 28th, 1910.

Sir W. D. Niven, President, in the chair.

Mr. S. Brodetsky was admitted into the Society.

The following papers were communicated:—

"The Accuracy of Interpolation by Finite Differences" (Second Paper): Dr. W. F. Sheppard.

"Theorems connected with Maclaurin's Test for the Convergence of Series": Mr. G. H. Hardy.

Lieut.-Col. A. Cunningham communicated two notes on the theory of numbers, (i) "The Factorisation of $2^{77}+1$," (ii) "The Indivisibility of 2^p-2 by p^2, p being Prime."

Thursday, May 12th, 1910.

In consequence of the death of His Majesty King Edward the Seventh, the meeting announced for this date was cancelled.

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The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 16th of July, 1910, at 3 p.m.

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EXAMINATIONS.

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CONTENTS.

	Page
Leader: Is it Peace?	259
Notes	260
College Notes: Simplification of standard in Examinations; Arithmetic to be voluntary; additional Examiner in Chemistry; Committees of extension of the work and influence of the College.—Straitened Means in Higher Education—London University Commission's Report—Official Provision for Welfare of Indian Students in London—Indian History in Secondary Schools—South Africa and the Rhodes Trust—Canadian Historical Compilations.	
Summary of the Month	262
Universities and Colleges	264
Cambridge — London — Queen's (London) — Sheffield — Belfast—Queensland.	
The Educational Ladder	265
The Educational Value of Music. By Miss Ruth Boyce (*Western Journal of Education*)	267
Correspondence: Appointments in Secondary Schools	268
Current Events	271
Fixtures — Honours — Official Degrees — Endowments and Benefactions—Scholarships and Prizes—Appointments and Vacancies.	
The College of Preceptors:	
Meeting of the Council	275
"The Newer Education": Summary of Address by R. Blair, M.A., B.Sc., Education Officer to the L.C.C.	275
Reviews	276
A Literary History of Russia (Brückner) — The Acharnians of Aristophanes (Rogers)—Electricity (Hobart).	
General Notices	278
First Glances	282
Mathematics	283

The Educational Times.

Is it Peace?

THE proposals of the Executive of the Educational Settlement Committee reached us just in time to be too late for consideration, or even mention, in our last issue. They are too important, however, to be ignored, and in fact they will have to be reckoned with in any future attempt at a legislative arrangement. They set forth the conclusions of a body representative of different schools of belief and of educational experience after twelve months' inquiry and conference, publication having been delayed in consequence of the political crisis of the present year. The object of the Committee was "to promote and maintain religious teaching as an integral part of the national system of education, and to work on non-party lines for an educational settlement with respect to all forms of conscientious belief." The (or, at any rate, a) motive force appears to have been a well-founded dread of the secular solution.

The first of the fundamental principles of the Committee's plan is "that an elementary school under public management should be accessible to every child"—"that in all parts of the country, whether urban or rural, public elementary schools under public management should form the groundwork of the national system of education, and that no child should be compelled to attend a school under denominational management against its parents' wish." In single-school areas, then, the school must be a provided school. This involves the transfer of non-provided schools, and the Committee anticipate that such transfer would, in almost all cases, be voluntary, "two years (with a possible extension)" being granted for negotiation, and "all prospect of rate aid and State aid for the school as a purely denominational school having gone." The trust deeds or the practice of the school would be respected so far as to require the Local Authority to provide in any transferred denominational school accommodation in the school house for the giving of denominational religious instruction to any child whose parents should desire it—half an hour a day, the cost to be defrayed from voluntary sources.

The Committee themselves recognize that "great numbers of the trusts were formed with the stated purpose of providing denominational education," and that "the denominational character of the school does not reside solely in the religious lesson expressly so named—its power of influence lies to a large extent in suggestion, implication, and environment, in the pre-suppositions of its teaching, in an intimate association between the staff of the school and the religious body to which it is attached." Yet they agree that "this close union between any Church and a State-supported school in a single-school area is a privilege which may now rightly be surrendered." That is to say, what is, on their own showing, of the very essence of the school's existence—of its trust-deed, or of its practice—"may now rightly be surrendered." Some further demonstration of this "rightly" seems likely to be called for.

The second fundamental principle of the plan "makes religious teaching an integral part of school life," and accordingly it is proposed "that it should be the duty of every Local Education Authority either itself to provide religious instruction in all Council schools for all children whose parents desire it, or, in default of such provision, to afford full opportunity for any voluntary organization to give religious instruction within the recognized hours of school attendance." There is to be a Religious Instruction Committee to frame and revise a syllabus; there are to be safeguards to preserve a real liberty of conscience; and there is a feeble effort to remove a possible "cause of unforeseen estrangement between the moral and religious teaching in a school." The religious "atmosphere," however, which the Committee has recognized as going beyond the mere religious lesson, is silently ignored.

The third principle is the encouragement of diversity of type of schools, and a high standard of excellence in methods of teaching and in the hygienic conditions of school life. Everybody will agree to the general proposition. "Where choice of elementary schools is possible without detriment to the efficiency of general education, the plan proposes to permit variety of type in accordance with parental preference, provided that all the schools are required to comply with an approved standard of efficiency (which by no means involves identity of method or

of course of study), and to submit themselves to inspection." This proposal opens the way for alternative — that is, non-provided — schools. And "it is proposed that, where required by the parents as supplementary to a generally accessible system of elementary education under public management, denominational and other alternative schools should receive maintenance out of Goverment grants and out of local rates at exactly the same rate at which such aid is given to Council schools in the same area for work of a corresponding excellence and of like service to the community." No doubt, the argument of "concurrent endowment" will be advanced here; but, as we have already indicated, it is wholly invalid —a mere question-begging misnomer. This provision, we take it, is the most valuable of all the proposals, and, if adopted, would practically solve the whole difficulty.

The remaining sections of the brochure deal with the religious freedom of teachers, the right of appeal on questions of law and in cases of dismissal, the need of an early inquiry and report as to the present accessibility of Council school accommodation (especially in rural districts), and the importance of reaching a settlement without breach of historic continuity. The principle that religious tests for teachers shall be abolished is complicated with permission for teachers to give religious instruction in certain cases—a position that may easily cause trouble. However, there must be some give-and-take in a compromise, and the multifarious details invite a broad and generous consideration.

NOTES.

After much deliberation the Council of the College of Preceptors have come into line with the University Local Examining Boards in agreeing to grant certificates to candidates who have satisfied the Examiners in the prescribed subjects without requiring them to gain an aggregate of marks. At the same time, they have felt it necessary to raise the standard of passing in individual subjects so as to prevent any lowering of the standard. It has long been felt as a hardship that a candidate who had passed in the necessary subjects might be refused a certificate if he had not also gained a large number of extra marks in those or other subjects. The alteration makes for simplicity of standard, and will probably be welcomed on that account.

In another important respect the Council have also seen fit to follow the example of one of the University Boards, and next year candidates will not be obliged to take Arithmetic. This concession will doubtless be appreciated in girls' schools. It is held by some competent authorities that girls, when properly taught, are quite as capable as boys of tackling this subject. But, if one is to judge by the choice of examinations, this view is not prevalent among women teachers.

The Council of the College have had no light task in selecting an additional Examiner in Chemistry. There were fifty-two candidates for the appointment, and many of them were men of high attainments. The successful candidate, Dr. E. C. Jee, is exceptionally well qualified for the work. Not only has he had considerable experience in teaching and in examining, but for several years he was engaged, in conjunction with Dr. Moody, in elaborating courses of study in experimental chemistry for secondary schools.

Three Committees — the Education Committee, the Examination Committee, and the *Educational Times* Committee — are busily engaged in considering suggestions offered by members for the extension of the work and influence of the College of Preceptors. The labours of the Committees will not be concluded until late in the autumn. In the meantime it is interesting to note two suggestions on which members lay great stress. One is that the College should take a more active part in promoting the claims of private schools to have a recognized place in the educational system of the country; the other suggestion is that further facilities should be afforded for the use of the College building so as to make it the centre for the activities of secondary teachers' associations.

There is considerable anxiety in educational circles to learn what the Chancellor of the Exchequer proposes to do for the higher education, and not least among educational administrators that depend upon the "whisky money." Leeds University, for instance, is said to have already lost some £2,000 through the drying up of this source of income, and it does not stand alone. Some Education Authorities, it is reported, are so severely pressed that there has been talk, and even proposals, about cutting down their scholarship schemes. "When it is actually proposed, as was done at the Association of Education Committees yesterday," writes the *Yorkshire Daily Post* (June 3), "to abolish or suspend secondary education altogether if the Government remain so niggard, and to spend on elementary education the whole of the money available, we have come to a parlous pass in which no institution can feel safe." The reduction of income is felt all the more keenly because everywhere educationists are straining forward and are seriously hampered for lack of increase of means. Mr. Lloyd George, no doubt, has promised to make good the whisky money deficiency; "but there are signs," our contemporary alleges, "that he may be intending to do this by allocating to higher education the proceeds, or past proceeds, of the moiety of the land taxes promised to Local Authorities." Evidently that will not do, and Mr. Lloyd George is too clear headed to make any such "mere cynical pretence." Anyhow, it would be well to have the suspense relieved as soon as possible; and the more handsomely the better.

The Royal Commission on University Education in London have issued as a Blue book (Cd. 5,166) the minutes of evidence laid before them up to April 21. In view of the extraordinary complications of the University in constitution and in administration, it is not surprising that very different and very strong opinions should be expressed on many important questions. There is indeed no lack of criticism, constructive as well as destructive. Everybody

interested in London education will go straight to the Blue book itself. But an emphatic caution is necessary, and it has been promptly given in the columns of the *Times* by Prof. Hill, the Vice-Chancellor. Dr. Hill points out that the Blue book is only part of the case: that, "in addition to the evidence already published, further evidence from persons representing other views held in the University will be submitted to the Royal Commission." "The minutes of evidence now published as an instalment do not contain any of the official reports recently sent in to the Commission by Standing Committees of the Senate and by the Faculties of the University." Therefore, obviously, "it would be well for the public to suspend their judgment and abstain from drawing conclusions from the evidence now available until the whole inquiry has been completed and the Commission has issued its final report." A further caution seems desirable: to inquire in each case what is the basis of special knowledge and experience supporting the particular evidence of the witnesses. It is not unfrequently assumed that a person of name in some department necessarily knows all about it: which is, often at least, absurd.

We learn from the *Times* that "the Secretary of State for India is now in a position to complete the programme he adopted on the recommendation of a Committee which sat three years ago to consider the best means of promoting the welfare of Indian students in this country." The final stage of this programme "takes the form of supplementing the work of existing Indian unofficial societies in renting, at the cost of the Indian revenues, a house wherein to lodge them as well as the Educational Bureau established in the spring of last year at the India Office under the zealous charge of Mr. T. W. Arnold, the Educational Adviser." The house (21 Cromwell Road) is apparently ample for all the purposes of a residential club, and it is expected to be in working order by the autumn. We have never doubted the good intentions of the Secretary of State or "the zealous charge" of Mr. Arnold; nor yet the desirability of some judicious oversight of Indian students in London. But those that are really acqnainted with Indian students cannot do otherwise than regard with misgiving the official character of the arrangements, and question the propriety of charging the heavy costs to the revenues of India. If India House produced blatant extremism, the official House is just as likely to cultivate no less dangerous hypocrisy. The political discontent that the young men bring with them is not to be cured by shepherding them into a Government pound. If the Inns of Court were to do their duty by their Indian students, there would be very little room left for the attentions of the Secretary of State. In any case, the superintendence of the men shonld be neither official nor political.

The Merchant Taylors School is to be congratulated on carrying for the second time the Royal Asiatic Society's Medal for an open essay upon an Indian historical subject. This year, indeed, the competition has not been particularly keen: only two essays were sent in, the Perse School alone of all the other schools in the kingdom having entered the arena. No wonder Lord Reay made a strong appeal for further exertion on the part of the schools "to make the study of Indian history attractive." "When we consider what is the importance of the maintenance of our supremacy in India, and how deplorable the result of ignorance of Indian history must be," said his Lordship, "it reflects no great credit on our educational system that this great subject should not be received with more enthusiasm. If Germany controlled the destinies of such an Empire as India, you may depend upon it that the study of Indian history would be compulsory in every secondary educational institution in Germany." Of course, it would. But then Lord Reay, having taken part in the government of India as head of a great Province, naturally feels the force of his argument more fully than stay-at-homes, whose heads have probably been stuffed, while their patriotism has been narcotized, with the conventional laudations of British Indian rule. Besides, there is no little difficulty in dispelling ignorance of Indian history, owing to the grave obstacle of lack of trustworthy information: some histories of repute are admittedly rich in perversions of fact, and not every one is capable of reading between the lines of veracious Blue books. We might suggest as the subject of an essay, for example, the treatment of the career of Warren Hastings by Burke, Mill, Macanlay, and Forrest: that would open one's eyes to the true inwardness of what is called Indian "history." However, the difficulty of the enterprise is no argument against trying; and the schools may be expected to lay to heart Lord Reay's remonstrance. The maintenance of our supremacy in India, fortunately, does not depend upon school essays on Indian history, or indeed upon any logic beyond the fact that we are there and mean to stay there: *j'y suis, j'y reste.* The essential questions lie in the temper and the methods of our administration. Yet, curiously enough, these are the very things that are taboo.

Dr. Parkin, the indefatigable Organizing Secretary of the Rhodes Scholarship Trust, has been making an extensive tonr in South Africa. Under the Scholarship scheme South Africa is better provided for than any other country in proportion to population, and nobody will quarrel with that, seeing that South Africa was the scene of Rhodes's life-work and the land of his fortune. Still, the world moves, and the Transvaal and Orangia, though now British territory, are outside the purposes of the Trust; but Dr. Parkin thinks the Trust may yet do something for them, or that some other magnate may supply the omission. Again, the Rhodes scholars from the Cape, Natal, and Rhodesia—"a couple of dozen scholars permanently in residence at Oxford"—while brilliant in the University sports, have not brought distinction to the honours lists, "whereas the scholars from Australasia and Canada have carried off not a few scholarships and other prizes." This "failure," according to Dr. Parkin, has caused not a little disappointment both in England and in South Africa. After all, how should he expect that a student with donble the necessary income should sweat for prizes? However, he does not blame the students: he blames the mode of their selection. "They are chosen when they are too young, too undeveloped mentally, and thus their athletic

attainments are far superior to their intellectual power." Therefore "a higher standard of attainment must be exacted, and older and maturer men must be chosen." And so it comes to this, that South Africa must "establish as soon as possible a real teaching University of her own in some central spot, where the future Rhodes scholars may receive the necessary preliminary grounding." Some people may ask why the existing institutions are not deemed equal to the occasion, or capable of sufficient improvement; and also whether the heart of Rhodes was so keenly set upon scholarships and prizes.

Dr. J. George Hodgins, the Historiographer of the Education Department of the Province of Ontario, always contributes an interesting appendix to the annual Report of the Minister of Education. Thus, in 1907, he presented a synopsis of the contents of twenty volumes of the documentary history of education in Upper Canada (1791–1869); and "it is interesting to know that (so far as I am aware)," he says, "this Province and the Empire of Germany are the only two countries which publish a connected narrative of the History and Progress of Education." He looks after the original sources, compiling the facts from laws or decrees, school programmes and regulations, and other records of progress, and avoiding theories or schemes of education advanced and discussed by philosophic writers; and he deals with each subject specifically, and to a certain extent, separately—the Common (or Public) Schools, the Grammar Schools, the Colleges, and so forth. In 1908 he set forth what the United Empire Loyalists, who settled in what are now the older parts of the Dominion in 1783, did for education in Upper Canada, with a brief account of distinguished pioneer teachers, and reminiscences of their successors, concluding with a graphic description of the old log school house of ancient days and its associations. In 1909, Dr. Hodgins reports the completion of the twenty-eighth volume of his Documentary History of Education in Upper Canada, bringing the story down to the close of the administration of the Rev. Dr. Ryerson in 1876—altogether a monumental work, involving immense and difficult research, and conducted with remarkable judgment. Moreover, though eighty-eight years of age, he has "made considerable progress in the compilation of a special historical volume on the first establishment of schools and colleges in this Province"—"a most difficult and arduous work so far as the schools are concerned, involving an immense amount of correspondence with the various School Boards, owing to want of local interest on the subject, and often to the non-existence of the 'oldest inhabitant,' and other causes." Not content with this, he has also made way with a projected volume on "The Statues and Monuments of the Dominion." And, furthermore, he has projected the separate publication of the more important and specially valuable documents contained in the Documentary History, together with other documents of exceptional importance in the history of Canadian education. It is a great pleasure to record such an example of educational zeal and achievement, and all educationists will wish Dr. Hodgins health and strength to see the accomplishment of his beneficent projects.

SUMMARY OF THE MONTH.

It was recently announced that an Institute of Linguists was about to be formed for the purpose of promoting the knowledge and use of modern languages, and that it was proposed to invite in a corporation persons, whether British or foreign, who, either as teachers, scholars, or men of letters, interpreters, or foreign correspondents, desire to co-operate in furthering this object. The inquiries received at the offices (19 Buckingham Street, Strand) from those who desire to join the Institute (says the *Times*) already number about six hundred, and it is hoped that it will be possible to hold the first examination at the end of next month. The London University has been asked by the Institute to conduct the examination. It is proposed that the Institute shall consist of honorary members nominated by the Council, and Associate members approved by the Council after satisfying the examinations or other tests which may be imposed. It is hoped that merchants, bankers, educationists, and all interested in the advancement of international commerce will enrol themselves in the first class. Candidates for the Associateship will be examined in two or more languages (one being English). The examination will be in two parts: the Literary section (Associateship in Letters) and the Commercial section (Associateship in Commerce). The literary examination will be framed in order to test the candidate's knowledge of current language and literature, and will not include philology or (directly) grammar. In the Commercial section, business letters to be written and answered will form an integral part of the examination. In the list of members Associates will be distinguished by the letters A.I.L. (Litt.) or A.I.L. (Com.), according to the examination passed. A considerable number of foreign gentlemen resident in London have expressed their desire to join the Institute.

The main touring party of University men about to proceed to Canada and the United States, under the auspices of the Students' Travelling Bureau, left Liverpool on June 21. The party was composed of ten students representative of Cambridge, Edinburgh, Durham, London, and other Universities. Their itinerary includes Quebec, Montreal, Ottawa, Toronto, Hamilton, Cobalt, Sault Ste. Marie, Fort William, Winnipeg (near which city they will spend four days at work on farms with a view to acquiring some insight into the conditions of Canadian agriculture), Maddison (Wis.), Chicago (Ill.), Pittsburg (Penn.), Washington, and Annapolis Junction (Md.). At Annapolis they will see the working of the National Junior Republic, which is one of the most modern experiments in the reformation of juvenile criminals. The rest of their journey will comprise visits to Philadelphia, New York, Yale, and Harvard. The realization of the scheme, as far as the organization of the conducted tours is concerned, has been made possible for this year by the generosity of a benefactor who wishes to remain anonymous. The American and Colonial Clubs, composed of Rhodes scholars at Oxford, have passed a resolution strongly approving of the aims and objects of the Association for the International Interchange of Students.

At the annual congress of the General Association of Church School Managers and Teachers at the Cambridge Guildhall, Mr. J. Wallace (Cambridge) proposed, "That this congress is of opinion that a very grave responsibility rests upon His Majesty's Government and upon Local Education Authorities in training candidates for teachers' certificates in excess of the demand and for whom no appointments are available on leaving college." He referred to the glut of teachers on the market, and suggested by way of remedy that the Local Authorities should receive larger grants from the National Exchequer, which would enable them to pay for more teachers, and that some means should be devised to stop Local Authorities from establishing training colleges, as they were now doing, irrespectively of the need of such establishments. Mr. Tinner seconded, and said the largest class of teachers suffering were those who were turned out from London training colleges and failed to get on the London County Council College list, which militated against their receiving even country appointments. The Rev. J. West (London) reminded his hearers of the sad condition of the elderly teachers of about fifty years of age who were out of

work. He considered the Government were encouraging the formation of training colleges too recklessly. The resolution was carried.

The Annual Conference of the Association of Head Mistresses was held at Salisbury, June 10–11. In her Presidential Address Miss S. A. Burstall (Manchester High School) referred to the weakening of parental control, and said the evil influence was like an infection in the air, attacking the best of homes, the most conscientious of parents, and the most affectionate of children. One of the causes was to be found, perhaps, in the proud self-consciousness and independence of the youth of to-day, and another was the lack of parental responsibility in careless and easygoing, if not bad and vicious, persons. Another was the fact that parents were doubtful of their own authority, of their own knowledge and fitness. Reverence and respect for father and mother were virtues forgotten because they were never practised by hundreds of girls. Still more dangerous was the attack on the family as an institution. Side by side with this weakening of family life there was an increased sense of the importance of the new generation which made it necessary that the State should concern itself with the bringing up of children who otherwise might become unfit citizens. Even in England the majority of the people were beginning to believe in education and to allow the State to control and finance it. The one great fault that affected all classes of society was an extravagant love of pleasure, a slackness and softness of moral fibre, a contented and self-satisfied refusal to encounter pain and toil. The indulgence of parents, the lack of self-reliance in intellectual effort of girls, the very real delicacy of health due to softness of living, and the nervous inability that resulted from town life and excess of amusement, all these the head mistresses encountered, and they must encourage one another to resist them even more strenuously than in the past. Among other things, the Conference resolved that the Board of Education should be approached with a view to the issue of an Order in Council for the establishment of a Teachers' Registration Council and Register.

The Annual Conference of the Child Study Society was opened at Tunbridge Wells (June 10) with a Presidential Address by Sir James Crichton Browne. Sir James said he had no general indictment to bring against the public schools of the country, but he thought the public should know what public schools were doing with the moneys entrusted to them; and more important than any fiscal revelation was it to obtain a trustworthy *vidimus* of their educational performances. Enough was heard of their successes, but what of their failures? The achievements of their pupils in the Universities, the public services, and the flannelled field were trumpeted abroad, but they heard nothing of the unfortunate boys who were sent down, or superannuated, who had suffered from infectious diseases, or whose health had given way. He had seen cases in which he believed public schools had been in some measure responsible for the development of mental disease or for the creation of artificial stupidity. As regarded medical inspection, it might be said that public schools already had it, as most of them had their special medical officers. But he wanted something more than that—a thorough and systematic examination of the building and the boys from time to time by a public official, with authority to ensure that his recommendations would be carried out. There still existed in some of the schools customs of discipline and general management which would not long survive close medical scrutiny. One such custom existing at Eton he succeeded in materially modifying about a year ago. He brought the matter to the notice of the head master, who promptly held an inquiry and subsequently issued regulations which, although they fell short of what he had suggested to the head master, were a valuable instalment.

At the annual conference of the Association of Teachers in Technical Institutions, held at Birmingham, Mr. J. Wilson (Battersea), in his Presidential Address, said the country was gradually awakening to the claims of technical education, but the progress was slow. In its utilization of science, the English manufacturing world was some decades behind its chief competitors. In invention, Germany, America, and France led—England followed. All the new industries which had come into existence during the last fifteen or twenty years, such as motor-cars, aeroplanes, and many others, were either German, French, or American in their origin or commercial development—none English. Among the reforms which he suggested as remedies for the existing evils were the institution of a system of "technical" secondary schools in addition to the existing type of "literary" secondary schools; compulsory attendance at day or evening continuation schools, coupled with a limitation of the hours of labour of adolescents; and an adequate system of scholarships with maintenance allowances.

Arrangements have been made by the Workers' Educational Association in the Midlands for beginning next winter tutorial classes for working men in connexion with the University of Birmingham. The classes will be limited to thirty students, who will be required to take a three years' course in the subject selected for study. In the case of Birmingham and Derby "Industrial History" has been chosen as the subject, and already applications for the Birmingham class have been received from forty-nine students. From this number and any others that may be received it will be necessary to make a selection. A class will also be held at a third centre, but the place has not yet been decided. It will probably be Kidderminster or Smethwick. Subject to the sanction of the University Senate, the Hon. Gerard Collier has been appointed tutor of the classes.

Speaking at the recent Spring meeting of the Classical Association of Scotland, held at St. Andrews, Prof. Burnet (St. Andrews) raised the question of the place of set books in preliminary examinations. The question had arisen through the English Association at its January meeting, on the recommendation of its Council, having adopted the following resolution:—"That a University Matriculation Examination in Latin should comprise as obligatory parts, in both of which candidates are required to satisfy the examiners—(*a*) Set books or prescribed portions of authors, with questions historical and literary as well as grammatical arising out of them, as large a choice of books as possible being left to the candidates; (*b*) unprepared translation." It was not stated in so many words that the same principle should apply to Greek, but they might assume that this would be the case. If so, the resolution contemplated an entirely different type of entrance examination to that to which they had been accustomed in Scotland for the last eighteen years or so. It was desirable, if at all possible, that the entrance examinations to the Universities should be of the same character throughout the three kingdoms, so far as could be done without sacrificing anything really desirable in the distinctive methods of any of them. Whatever the faults of the leaving certificate and preliminary examinations might be, they had at least this great merit—that the schools knew more or less exactly what was expected of them, and there was the further advantage that there could be no question of its being easier to get into one University than another. There was a disadvantage in having a different standard of entrance from the English Universities. He did not speak of Oxford and Cambridge, which had not, properly speaking, any entrance examination at all. If the resolution of the English Classical Association was carried out, the conditions of entrance to the Scottish Universities would be quite different from those which would prevail in the southern part of the kingdom. "We have no set books in Scotland," continued the speaker. "The whole examination is supposed to be unseen. The result of our system is that we have applied to students who wish to study classics in the University a test which is far more stringent than is applied in England or any European country." On the conclusion of the paper several members expressed various views on the question. It was agreed to remit the whole matter to the Council of the Association to consider and draw up a report which could be discussed by the Association.

At a meeting of the Scottish Modern Languages Association held at Dunfermline (June 4), Miss M. Bentinck Smith, M.A., St. Leonard's College, St. Andrews, read a paper on "The Teaching of Modern Languages in Secondary Schools." It was a good thing, she said, to encourage young people to read French in addition to the ordinary school work, and to read French novels, many of which were excellent. The essential point was to teach children to read fluently and with enjoyment, and to give them an appreciation of the literature of the foreign language they were studying. Grammar was quite a secondary matter. In

her own school at St. Andrews formal grammar had been entirely abolished, and there was no period in the school work that was given purely to the study of grammar. The paper was highly appreciated.

An experiment in the practical education of village boys has been initiated at Warnford in Hampshire. The squire (Colonel Woods) and the Rector (the Rev. J. Wynne) have secured the consent of the County Council to a scheme providing a course for boys of between ten and fourteen in such practical agrarian requirements as hurdle-making and spar-making. Whilst a section of the boys are engaged in cutting down hazels in the wood and sorting the material for the different parts of the hurdles, the remainder of the students are engaged in a shed in splitting the wood and making the wattles. If the boys satisfy the examiners—and they are to be examined by experts—then the training will be extended to thatching, and even to reaping and binding. The lessons are given in school hours; and the County Director of Education has taken such precautions as will prevent the teaching from degenerating into the use of child labour. Colonel Woods is bearing the cost of the employment of one of the best hurdle-makers in the district as tutor and is understood to be willing to extend his liberality.

A camp for boys attending secondary schools is to be held on the coast near Weymouth for five weeks, commencing July 30. The President is the Bishop of Hereford, and the Warden and Officer in Charge is Mr. J. Howard Whitehouse, M.P., of Toynbee Hall, who will be in personal charge of the scheme, with a staff of willing helpers. The camp will be pitched in private grounds fronting the centre of a beautiful bay. It will have the use of private cricket, football, and hockey grounds, &c.; and there will be also boating, swimming, inter-school competitions, camp sports, and excursions to places of interest. A special feature of the scheme is the Summer School, at which opportunities will be given, if he desires it, for a boy to follow such studies as are not usually possible for him during his ordinary school life—architecture, Nature study, folk lore, sailing, &c. He will be encouraged to use his eyes, and to realize more fully the inexhaustible delights of the country-side and the sea-shore. The charge has been fixed at the lowest possible sum. The gentlemen acting as officers (who are members of the Universities of Oxford and Cambridge, the public schools, &c.) do so in an honorary capacity. Parents may send young boys in full confidence that their health and happiness will be secured. No overstrain will be permitted. A medical officer will be with the camp. The camp is intended especially for boys between the ages of ten and sixteen. Older schoolboys will be received subject to certain conditions. Full particulars can be had from the Warden at Toynbee Hall, E.

Prof. Goldwin Smith, D.C.L., died at Toronto at the advanced age of eighty-seven. He was born at Reading, 1823, and educated at Eton and at Magdalen College, Oxford. He swept the board of classical distinctions, and was elected to a Fellowship at University College, 1846. He was Regius Professor of History at Oxford, 1858–1866. He went to the United States, 1868, and became Honorary Professor of English and Constitutional History in Cornell University. In 1871 he removed to Toronto, where he edited the *Canadian Monthly*, and founded the *Bystander* and the *Week*. He was always a keen, if perverse, politician. He wrote a great many books—religious, literary, historical, and descriptive—usually provoking controversy. A most accomplished and acute scholar, and a remarkable personality, a man "whose like as a free lance the world may not for many days see again."

UNIVERSITIES AND COLLEGES.

(*From our own Correspondent.*)

Cambridge. The Council have issued a new version of their scheme for amending the constitution of the University. Every criticism made in the recent discussion has been considered, and the result is that the idea of altering the fees for the B.A. and M.A. degrees has been entirely dropped; the new House of Residents still appears as a feature in the report, but all statutes are to go before both the new House and the Senate itself. For a Liberal Council this is amazing. Bicameral legislation, on the model of the old Irish methods, is seriously proposed as a desirable innovation. The Council propose; the House of Residents and the Senate consent, but cannot amend. These are strange things. A Syndicate is to be appointed to consider the relation of the colleges to the University. The conclusion which forces itself upon any unprejudiced outsider is that, as at present constituted, the University is being run in the interests of the permanent staff, while the undergraduate in general, and the poll man in particular, is being compelled to pay the piper without any opportunity of calling the tune.

Mr. R. F. Scott, the popular Master of St. John's, is to be the new Vice-Chancellor. He is a business man and will make his influence felt. We want a few more like him.

The publication of the lists, Tripos and Special, is the great feature of the May term. There are one or two interesting points to notice in this connexion. In the Natural Science Tripos, 67 men are placed in the First Class, 72 in the Second, and 65 in the Third. The Mathematical Tripos is steadily shrinking in spite of the new-fangled regulations and the abolition of the order of merit. The Law Special seems to be far away the most popular with the poll man, who is now allowed to substitute a "special" for the old "general" examination: 66 being classed in Part I and 72 in Part II, and this in spite of a severe pluck following somewhat tricky papers.

The appearance of Mr. Roosevelt in the Senate House was the occasion of much enthusiasm, although the gaiety of the scene was obscured by the absence of scarlet robes and coloured frocks. At Emmanuel the ex-President seemed delighted with his reception, and at the Union he seemed quite at home among "the boys," and won golden opinions from all.

Talking of Emmanuel, that College, through some of its livelier members, took occasion to celebrate a quasi-success on the river by the usual noisy demonstrations, and the ringleaders were sent down for a few days to cool in the country. The departure of the victims was made the occasion for carrying out the mock funeral which is now a recognized though somewhat antiquated joke. It fell rather flat in Cambridge, but served to make copy for some London papers. At Sidney an old laboratory was demolished, and unfortuately some valuable records of the research work of Mr. F. H. Neville and Mr. C. T. Heycock were consumed in the conflagration. It has been suggested that the bonfire at Emmanuel began by an attempt to incinerate all available copies of a certain pamphlet of suspected tendency which has recently been circulated by an eminent official of the college. If this is so, there is a reason to be found for the mild punishment meted out to those who profaned the sacred verdure of the Emmanuel Courts.

The honorary degrees this year were fully up to the average of interest: Lord Selborne represented administration, Mr T. G. Jackson architecture, the Speaker politics, Sir Oliver Lodge science, Sir Walter Parratt stood for music, and the learning of the Irish Bench was honoured in the person of the Right Hon. C. Palles.

No jokes were made by the undergraduates: humour is hardly to be expected on these occasions—it is reserved for the "rags" in which the effervescence of Cambridge wit finds a ready vent. But the flint will occasionally give sparks. A College magazine, in a guide to Cambridge Colleges, thus describes the amenities of Downing: "Frequent tram service. Boat follows the races." Of Christ's it is remarked: "All are welcome. English spoken."

The races showed that the order of starting — (1) Jesus, (2) First Trinity, (3) Trinity Hall, (4) Pembroke—would lead to some desperate struggles, each boat being a trifle faster than the one in front of it. Pembroke were successful in catching Trinity Hall the first night, but were pressed themselves by Hall the following night, though gaining each night on Trinity, which in turn nearly caught Jesus. Better rowing has rarely been seen on the Cam.

Among other incidents of the term, it may be noted that Mr. J. R. M. Butler, having annexed most of the classical distinctions at the disposal of the University, has broken out in a new place by winning the Gladstone Memorial Prize for Political Science.

Several eminent "blues" have succeeded in defeating the Examiners. J. B. Rosher, the President of the C.U.B.C., takes his degree *via* the Law Tripos; John Scholfield, the Rugger three-quarter, by the Law Special, the lists for which also contain the name of E. S. Hornidge, who rowed seven in the crew of 1909, while A. H. Ashcroft, the Rugger International, achieves a First Class in History.

London.

It has been resolved that the Syllabus in English, Matriculation Regulations, page 5, be amended to read as follows: —"The Examination in English will occupy three hours, and will include (*a*) a subject for an essay, to be chosen by each candidate from several subjects set. Those proposed may include some having reference to Geography and History, and some involving an acquaintance with English authors, as well as more abstract subjects, the main object being to test power of expression, thought, and arrangement, general reading and knowledge. All candidates will be expected to attempt the essay, to which special importance is attached. In and after January, 1911, the Essay paper will be set separately, and one and a half hours will be allotted to it. (*b*) Questions testing knowledge and command of English. These may include questions on précis writing, paraphrase, and analysis of sentences. (*c*) Questions testing general reading and knowledge of English books."

Queen's, London.

At the annual meeting of Queen's College, London, Canon Bell, Principal and Dean, reported continuous progress, and stated that during the past year the College had welcomed students from Denmark, Austria, Norway, Belgium, and other countries. The College sent its best wishes and congratulations to Lady Gladstone, a former student, upon her husband's appointment as Governor-General of South Africa. The Bishop of London, in his annual address as Visitor, spoke sympathetically of Queen Alexandra, the Patron of the College. In wishing the new King and Queen a long and prosperous reign, he was not breaking any confidence in stating that he had had the pleasure on more than one occasion of showing our new Queen something of the inside of East London life. He could assure those present that there was no one more interested in all that made for the welfare of the poor than the new Queen, and no one who brought to bear upon the various problems such sound common sense and experience. They could not have failed to notice how King George always associated the Queen with him in all things. Proceeding, the Bishop exhorted the students so to live as presently to be his comrades and helpers in fighting sin in London and making people happier. He was an optimist, and was always defending the happiness of London against the unhappiness. For every miserable person the pessimists could bring forward, he was prepared to produce nine people who were happy. He was tired of those people who were always blaming God for managing this world so badly.

Sheffield.

An important movement towards democratizing the Sheffield University has just been entered upon. The aim is to bring systematized education on University lines nearer the reach of working people. Last winter two courses, one on "The History of Political Theories," and the other on "Growth of Democracy in the Nineteenth Century," were held in connexion with the University, and the authorities were so satisfied by the character of the response of working men that they have embarked upon a more ambitious experiment. It is proposed to hold what are called Tutorial Classes at selected centres in localities within the sphere served by the University where working people in sufficient numbers desire them. The scheme is to be worked by a joint committee representative both of the University authorities and of working class organizations. Thus, whilst Mr. George Franklin, the Pro-Chancellor of the University, is the Chairman of the Committee, the Vice-Chairman is Mr. Robert Holmshaw, and the Joint Secretaries are Mr. W. M. Gibbons, the Registrar of the University, and Mr. S. Partridge, Secretary of the Workers' Educational Association. "I want you to make it clear," observed Mr. Gibbons, in an interview with a *Sheffield Telegraph* representative, "that the success of the experiment depends entirely upon the workpeople themselves. We are going out to the workers, the ordinary men in the workshops, and offering them University teaching in appropriate subjects that will reproduce so far as conditions permit that close personal contact between tutor and student which is so valuable a phase of University life. We believe there is a demand amongst the workers for this kind of teaching, and we ask them to make known their demands and we will provide for them. We hope that they will realize what this scheme means—the bringing of the highest form of education to their doorsteps. But it must be understood that we cannot start a class in any particular centre unless there is a sufficient demand, say of twenty-five students who are prepared to take the full course of three sessions and fulfil the conditions of the class." The proposed courses include such subjects as economics, history, literature, and philosophy, but it is not so much the character of the subjects as the nature of the training that is the distinguishing feature of the scheme.

Belfast.

The Vice-Chancellor, in his annual report, stated that the number of students of various faculties studying in the University during the session was 720, and referred with satisfaction to the number of women students. The report also referred to the new buildings about to be begun, the total cost of which is estimated at about £52,000, this sum being provided by the Treasury.

The Senate considered the proposals of the Board of Studies for the extension of the Lectureship in scholastic philosophy, so as to make it embrace the three subjects of scholastic logic, scholastic metaphysics, and scholastic ethics, against which a resolution of protest was recently passed by Convocation. An amendment declining to approve these changes was carried by 14 votes to 13.

Queensland.

Steps are being taken by the Government of Queensland to invite applications in London for the Professional staff of the University shortly to be opened in that State. The chairs to be filled are Classics, Mathematics and Physics, Chemistry, and Engineering. Applications will shortly be invited by Major T. B. Robinson, the Agent-General in London. The salary of each Professor is to be £900 a year. The Government of Queensland will contribute £10,000 a year for the next seven years to the University. Arts, Science, and Engineering will be the three great faculties. The proposal in the first Bill that Commerce was to be a faculty with a Lecturer and a degree of B.Com. has disappeared.

THE EDUCATIONAL LADDER.

Cambridge: Girton College.—College Scholarship, £50: Miss E. Baker-Gabb, St. Felix School, Southwold (English and German). Pfeiffer Scholarship, £30: Miss M. A. L. Burge (English and French).

Cambridge: Newnham College.—Fellowship in Mathematics: Miss H. P. Hudson.

Cambridge University.—First Tyrwhitt Hebrew Scholarship: E. Levine, B.A., Jesus. The Second Scholarship not awarded.—Mason Prize for Biblical Hebrew: E. Levine, Jesus.

Jesus.—Fellowship and Assistant Lectureship: C. A. Elliott, B.A., Scholar of Trinity.

St. John's.—Open Exhibitions of £30 for two years:—Mathematics: F. L. Engledow, University College, London, and E. M. Maccoby, Central Foundation School. Classics: B. Browne, Warrington School, and F. R. Honeyball, St. Bees School. Natural Science: A. P. Cliff, King Edward VI School, Stourbridge.—Dowman Sizarships: H. T. Mogridge, Haileybury; E. C. Nicholson, Magnus Grammar School, Newark; R. D. Scholfield (two years only), Rossall School: and J. E. H. Wood, St. John's School, Leatherhead.—School Exhibitions: Dowman Exhibition (Pocklington School), L. G. M. Crick; Lupton and Hebblethwaite Exhibition (Sedbergh School), W. Mulholland; Somerset (three schools) Exhibition, L. H. Shelton, Hereford School.

Trinity Hall.—Honorary Fellowship: H. E. Malden, M.A., Vice-President and Hon. Secretary of the Royal Historical Society.

Canterbury: King's School.—Junior Foundation King's Scholarships: E. J. Gent, L. W. Goldsmith, S. W. Wayte (Mathematics), J. T. Fleming-Sandes (Modern subjects), R. K. Pagett (all of the King's School).—Probationer King's Scholarships: R. J. Routh (Mr. Taylor, Broadstairs), F. B. Marsh (Mr. Earle, Bilton Grange, Rugby), G. E. Clayton (Mr. Trask, Bath), G. L. D. Davidson, E. C. Bing (Junior King's School), E. R. Watts (Messrs. Nettleton and Jeffery, Folkestone). —Entrance Scholarships: R. J. Routh (Mr. Taylor, Broadstairs), E. J. Eccles (Mr. Brown, Mervon House, Southwick), G. Haward (Mathematics) (Mr. Sirr, Deal School, and the King's School), G. E. Clayton (Mathematics) (Mr. Trask, Bath), F. B. Marsh (Mr. Earle, Rugby) L. G. Robertson (Mr. Trask, Bath).—House Scholarships: R. A. Rossborough (Miss Watson Willis, Eastbourne), H. G. Evans (Mr. Athawes, Broadstairs), G. A. Pugh (Miss Watson Willis, Eastbourne).

Cheltenham College.—Scholarships: D. H. Banner (Mr. Hake's, Hailey School, Bournemouth) (Honorary), £80; H. E. D. Carter (Cheltenham College, Junior Department), £80; H. H. M. Fraser (Mr. Meakin, Pembroke Lodge, Southbourne), £80; M. H. Gaitskell (Cheltenham College), £80; E. P. Donaldson (Cheltenham College), £60; H. L. H. Du Boulay (Cheltenham College, Junior Department).

(Honorary), £60; P. G. E. Warburton (Cheltenham College), £50; H. G. S. Bivar (Cheltenham College, Junior Department), £40; C. A. M. Furlonger (Mr. Windle Taylor, Clifton), £40; J. M. B. Gibbons (Cheltenham College, Junior Department), £40; C. McV. Gubbins (Cheltenham College, Junior Department), £40; F. L. C. Hodson (Cheltenham College), £40; J. C. Latter (Cheltenham College), £40; C. B. Robertson (Mr. How, Sunnydown, Guildford) (Honorary), £40. James of Hereford Scholarships (open *pro hac vice*): E. L. G. Beville (Mr. Richardson, Beaudesert Park, Henley-in-Arden), £35; R. P. Johnson (Miss Watson Willis, Glengorse, Eastbourne), £35; I. V. H. Campbell (Cheltenham College), £20; L. C. Carus-Wilson (Cheltenham College), £20; W. D. M. Christie (Cheltenham College), £20; H. N. Crooke (Cheltenham College), £20; H. R. Francis (Mr. Roberts, Langley Place, St. Leonards-on-Sea), £20; J. S. Fuller (Miss Watson Willis, Glengorse, Eastbourne), £20; J. Nichols (Mr. Tindall, Hurst Court, Ore), £20; J. Spottiswoode (Cheltenham College), £20; G. A. G. Young (Cheltenham College), £20. Old Cheltonian Scholars (£20). Southwood Army Scholar (£27). Dobson Army Scholar (£20). Jex-Blake Army Scholar (20). Junior Exhibitions (£10) have also been offered to: R. C. D. Moore (Mr. Auden, Glyngarth, Cheltenham), H. J. Selby (Mr. Gurney, Brandon House, Cheltenham).

Clifton College.—Modern Language Scholarship, £20, S. O. K. Christie. Roquette Palmer Palmer Scholarship, £25, S. O. K. Christie. Cay Scholarship for Mathematics, £20, T. M. James. Old Cliftonians' Scholarship, £25, F. N. Tribe. Junior School Scholarship, £25, E. S. Blenkinsop; under seventeen, the Wilson, £50, E. A. Parker; under sixteen, E. K. Wakeford, increased to £50; under fifteen, G. T. Wakeford, £25, C. M. Haines, £25; under fourteen, £100, C. R. S. Harris (Mr. Lynam, Oxford); £50 each, W. G. Millar (Mr. Cooper, Orleton, Scarborough), R. E. C. Houghton (Mr. Hugh-Jones, Rhyl), E. Press (Mr. Elliott, Stoke Bishop, Bristol), and A. N. Gardiner (Mr. Reeve, Bigshott Rayles, Wokingham); £25 each (Army), J. A. S. Morin (Mr. De Brath, East Grinstead), and (Music) B. Ord (Clifton College).

Dublin University.—Fellowship: Hugh Canning, M.A. (Classics and Metaphysics). Madden Prize (£300 to the candidate next in order to the new Fellow): Samuel G. Stewart, B.A. (principal subject, Mathematics). Fellowship Prizes: Joseph R. Cotter (Mathematics), Newport B. White (Classics), James C. Wasson (Mathematics). Scholarships: Mathematics, George Joughin, Edward Synge, Charles Wilson, Horace Wilmot; Classics, Claude Armstrong, Alexander Egan, Osborne Beckett, Maurice Fitzgerald, Francis Godfrey, Ernest Martin, William Boyd, John Dudgeon, Francis M'Gibney, Gerald Small; Experimental Science, Harold Clotworthy; Modern Literature, Janie Karoline Renton (non-foundation), George Stevenson. Marshall Porter Prize: P. H. Brown. Special Prize: Kathleen A. Lewis.

Edinburgh University.—Lanfiue Bursary in Modern Languages, about £35 for 2 years: Miss Mary Burns. Heriot Travelling Scholarships, £100 each: Miss Ruth E. Clark, M.A. (French), and Miss Sophia I. Younie, M.A. (German).

League of the Empire.—Lord Meath Empire Day Challenge Cup Inter-all-Secondary Schools of the Empire, with 5 guineas prize: George B. Holloran, La Martinière College, Calcutta. Honourable mention: Dorothy Perry, Sydney; J. L. Murrell, Brisbane. Commended: Frances A. Parry, Denbigh, and Gwenneth Williams, Adelaide. — Challenge Cup Inter-all-Primary Schools of the Empire, with 3 guineas prize: Florence E. Endean, Kentish Town C.E. School, Islip Street. Honourable mention: Johanna Marshall, Lapstone Road Girls' School, Millom, Cumberland; R. H. Earp, Boys' Council School, Clifton Road, Birmingham.

London: Merchant Taylors.—Sir Thomas White Scholarships at St. John's College, Oxford: A. J. H. Roe, C. J. Ellingham, C. E. Spencer.—Andrew Exhibition at St. John's College, Oxford (vacant).—Stuart Exhibition to Cambridge for Natural Science: S. MacM. Wadham.—Pitt Club Exhibition for Best Scholar Leaving for the University: A. J. H. Roe.—Parkin Exhibition for Best Mathematician leaving for Cambridge: T. J. Y. Roxburgh.—"Richard Hilles" Exhibition for Mathematics: H. E. Roseway. — School Tercentenary Scholarship: A. J. H. Roe.—Hosken Memorial Exhibition: F. C. Ellerton.

London University.—Cobden Prize for 1909: Thomas Henderson, B.Sc.Econ., private study, and Henry G. Richardson, B.Sc.Econ., London School of Economics, equal. A prize of the value of £10 and a Silver Medal have been granted to each of the successful candidates.

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In an American University (says the *Lady's Pictorial*) they have just adopted the use of a machine, already tried in London, which measures a person's capability for work. It is, in short, a laziness-tester. Henceforth the heads of colleges will be able to see at a glance, so to say, whether students can or will not work, and doubtless there will come a time when, in addition to other examinations, officials of all kinds will have to submit to be tested by this ergograph. It would certainly be a useful thing to use when engaging a domestic servant, and such a machine would be invaluable to employers of the British workman.

THE EDUCATIONAL VALUE OF MUSIC.

By Miss Ruth Royce.

[From the *Western Journal of Education* (San Francisco).]

In this brief discussion it will be my endeavour to discover what bearing, if any, the study and practice of music has upon the physical, the intellectual, and the spiritual being; for to precisely that degree it will affect the education of the individual trained in its laws and methods.

Upon considerations especially obvious I need dwell but briefly. First, the intelligent study and practice of singing develops the speaking voice and improves the quality of tone and clearness of articulation. Recognizing this fact, skilful teachers of reading and vocal expression, even though they have no interest in music as such, make large use of singing exercises in their efforts to promote the flexibility and increase the compass of the voice. The importance of full, resonant musical utterance as an aid to success in life is by no means sufficiently dwelt upon in schemes of public instruction. Quality of tone and mode of articulation impress favourably or unfavourably, though it may be unconsciously, every ear which they reach. As significant factors of social efficiency they thus become important objects of educational endeavour.

Second, music cultivates the ear. The panorama of life is not the same for all. To one it unfolds itself as something commonplace and uninteresting, while to another it is an unending revelation of beauty and delight. In the one the senses are dull and unresponsive; in the other they are developed and cultured to perceive the finer and more marvellous harmonies of nature and of art. The loss of hearing is a privation which no one looks upon as less than a personal calamity. He whose ear is able merely to distinguish the larger differences of sound—loudness, softness, harshness, and the grosser noises which reach him—is deaf to much that is most pleasing and uplifting to the world; while he whose ear is trained to catch the finer distinctions of intensity and pitch and quality of sounds has a vastly larger range of pleasurable and refining experiences; for there come pouring in upon him from out of all the universe harmonies of whose existence the other can never even be aware.

Third, the practice of singing promotes health. Voice culture means the strengthening and training of the vocal chords, the increase of lung capacity and power, deeper and more effective breathing, the quickening of the circulation, and consequent invigoration of the whole system. There seems to be sufficient evidence that correct use of the voice in singing tends both to render one immune from throat troubles and at a certain stage to relieve such disorders when they have developed; and every physician will say unhesitatingly that there is no better prophylactic against pulmonary disease than the singing gymnastic, provided it is hygienically performed.

But the educational influence of music reaches beyond the physical organism. That, under proper conditions, it has power to stimulate intellectual activity and develop mental capacity, cannot be denied. The efforts necessary to acquire ability to sing or play at sight compositions of ordinary difficulty call into requisition much the same powers of discrimination, comparison, and combination that are needed for the translation of a foreign language; while the possibilities of expression and interpretation afford a much wider field for the exercise of judgment, discrimination, and taste than any translation can furnish. But when to such exercise of intelligence is added the task of elaborating themes or developing *motifs* to express musical idea, it cannot be doubted that the training received is quite as invigorating to mental activity as that which is derived from the organization of ideas into the forms of written composition or oral speech. Of musical study it is, of course, quite as true, as of any other, that it is in the higher departments that the intellectual element predominates. All musical composition involves intellectual effort, and in its more ambitious form it may become a means by which even the higher processes of the reason are called into requisition to formulate what is true and in accord with universal law. In the composition of the great musical masterpieces like Handel's "Messiah" and Beethoven's Fifth Symphony and Bach's masses there was expended no less intellectual power than was necessary to compose a "Faust," to paint a Sistine Chapel, or to plan a Cathedral of St. Paul.

Doubtless it is true that the intellectual training afforded by the study of music is different from that produced by the study of science or of logic; and it may be true also that musical culture is powerless to develop mathematical or linguistic or financial ability. But the reverse is also true—the study of these subjects does not result in greater musical or artistic skill; and who is to say where the balance of credit lies? Said the squirrel to the mountain, "If I cannot carry forests on my back, neither can you crack a nut."

But whatever differences of opinion may exist regarding the value of the contribution made by musical study to the development of intellectual power, its ability to quicken and intensify the emotions as well as to elevate and refine the whole nature cannot be questioned. Music is indeed the most natural as well as the most adequate expression of the emotional nature. Historically, it seems to have lain at the root of all culture, and the various steps in its development, as another has said, mark the "efforts of the human soul to come within its own—to express and fulfil itself." Feelings too deep for words and emotions, too intense for verbal phrase, unable to use the vehicle which conveys ordinary thoughts, find expression in music. It is the voice of the oversoul—the means by which converse is held with the infinite.

Yet it must be admitted that all music is not wholesome and uplifting. If, by its compelling sweetness, good music wins men to nobility and virtue, it is no less true that under the siren spell of the low and vulgar they are lured to destruction. Unless cultured to find satisfaction only in the best, bad music is capable of exerting a strong but corrupting influence. Of this fact almost daily observation furnishes abundant proof.

The educational bearing of this statement, as well as the duty which it implies, is apparent. "We must constantly distinguish," says Dwight, "between music, on the one hand, which awakens feelings wholesome, high, impersonal—music that is more allied to the intellect than to sense, enamoured not with pleasure solely but with truth and beauty, as the *highest type* and *symbol* of the *highest truth*—and music, on the other hand, which is shallow, maudlin, commonplace, attractive only to the selfish, sentimental, vulgar mind."

Good music does not end with mere sentiment. Under its influence the entire spiritual nature is stimulated. Thoughts awakened by it react on feeling, and *lift it up*, as it were, to a point where it becomes resolution—a point at which the whole being acquires a unity of purpose which makes all paths seem easy, and even hardship pleasant. It thus becomes one of the most efficient of all agencies for moral training.

Moral education that does not involve the actual practice of the social virtues is seldom effective. In recent years steadily diminishing confidence has been felt in the efficiency of that method of ethical culture which consists solely in the learning of the precepts of morality. Rules and maxims of conduct, both known and cordially approved, are often without effect upon the course of action. On the persons of the most infamous criminals have sometimes been found printed lists of ethical maxims and codes of moral behaviour, worn and soiled by frequent handling and reading. It is rather those agencies whose influence is more indirect and gradual, such as physical and moral cleanliness, wholesome associations, inspiring examples, artistic surroundings, healthful activities, and the cheerful performance of the day's duties, that we must regard as the more efficient means for the production of sound character, and the safest guarantees of sane and virtuous behaviour. Of all such environing influences music is perhaps the most forceful.

The power of music not merely to stir the highest emotions, but also to strengthen resolution and energize the will, is also universally conceded. Unlike worded exhortations to virtue, there is nothing arbitrary in its appeal. Its persuasive power lies in the fact that it brings the soul into harmony with the normal movements of a great controlling purpose and with the operations of universal law. Changes of resolve and increase of resolution caused by its influence are thus in accord with necessary spiritual laws, and to that degree deep-seated and permanent.

Hence it is that many of the noblest sentiments are almost inseparable accompaniments of music. It is for this reason that it is the voice of love and spiritual aspiration, and the chosen vehicle of expression of patriotism and loyalty. This is why it softens hardest hearts and smooths roughest natures; why it refines the neglected and reforms the depraved. It is the key to

the emotional and volitional nature—the "Open Sesame" of the soul.

Thus, music may not find its highest educational value in the establishment of a claim that, like mathematics or economics or any other science of utility, can be estimated in terms of commercial equivalence. It is too fine, too subtle, too spiritual for such measurement. Neither can we point to any department of the being and say: "This is the appropriate field for the transforming power of music." For, while it is promotive of bodily health and greatly enlarges useful sensory experience, it is not in the physical nature alone that we may look for its most beneficent effects. While it carries with it conscious culture of the memory and the reason, such culture is incidental and secondary. While it enriches scholarship and contributes to good manners and easy address, these do not represent its highest function. Though under its influence, frequently, resolution is strengthened and a fickle purpose is transformed into firm determination, the will is not the field in which its educational power may find freest exercise.

As education, in its larger meaning, knows no distinction of departments and faculties and powers of the individual, but comprehends the man in all the sweep and complexity of his nature, so the educative power of music centres in no single department of the being, but its influence is all-inclusive and pervasive. It is the exhilarating atmosphere immersed in which all the vital and spiritual processes function most perfectly. It is a form of culture whose disciplinary force frees from unwholesome constraint all parts of the being and brings them into harmonious relations with one another and with the laws of God. It is a vehicle by means of which the inner life of the soul is transformed into outer expression as *action* and *conduct*, and, together with its companion, art, more perfectly than any other human means, gives to that expression beauty and harmony and truth.

Thus is established organically the relationship of music to all education that is comprehensive and vital—education that means enhancement of power through co-operation with strong spiritual forces—education that aims for largest capacity and the highest forms of service.

CORRESPONDENCE.

[*We do not hold ourselves responsible for the opinions expressed by our correspondents.*—Ed., *E.T.*]

APPOINTMENTS IN SECONDARY SCHOOLS.

To the Editor of "The Educational Times."

Sir,—If the public generally are not aware of the method by which vacancies on the staffs of secondary schools are filled, to members of the teaching profession it is well known that many of such vacancies are never advertised publicly, but are filled privately through the medium of scholastic agencies, which for the most part are run for private profit only. In the case of schools receiving no Government grants there exists, of course, no scope for complaint and no grievance. But many secondary schools do receive grants from the State, and in these cases the non-advertising of vacant posts constitutes a grievance demanding redress.

The grievance is three-fold:—(1) In relation to the public, whose money assists the school, but who have no vestige of control over the appointments; (2) in relation to those teachers who do not happen to be in touch with the particular agency through whose medium particular posts are filled, and who thereby have no means of knowing of the vacancies as they occur; (3) in the case of those who do secure appointments, in that, after being appointed, they must pay a substantial commission to the agents out of their (usually slender) salaries, while the Head Masters who appoint pay nothing to the agents, though reaping the "benefit" of their services as truly as the assistant masters, and the agents grow fat on the fees paid to them by one of the worst paid branches of the teaching profession.

Can nothing be done by those who have the real interests of education at heart, to have it made a condition of any secondary school receiving State aid that all vacant posts in such schools should be advertised and thrown open to public competition? If such a condition could be laid down and enforced, a genuine public grievance would be remedied and a source of irritation to the teaching profession would be removed.—I am, Sir, &c.

June 15, 1910. N. Y. M.

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CURRENT EVENTS.

Fixtures.

The Half-Yearly General Meeting of the Members of the College of Preceptors will take place on Saturday, July 16.

* * *

London University Holiday Course for Foreigners will be held July 18 to August 12. The Principal will deliver the inaugural address July 18, 10 a.m. Apply to the Registrar of the University Extension Board, University of London, South Kensington, London, S.W.

* * *

Prof. Rippmann will deliver a course of five lectures on "Phonetics for Modern Language Teachers" at Queen's College (43 Harley Street, W.), commencing October 1, 10.45 a.m. It is intended that the lectures shall be of direct use to teachers in their daily work, and there will be opportunities for the discussion of difficulties. Apply to Prof. Rippmann (45 Ladbroke Grove, W.).

* * *

The Ninth International Congress for Commercial Education will be held at Vienna, September 11–16. Subscription, 10 kronen. Apply to Cashier Regierungsrat Rudolf Krickl, Lothringerstrasse 10, Wien, IV.

* * *

The second session of the seventeenth International Congress of Americanists will be held at Mexico City, September 8–14. Communications to the Congress may be either oral or written in English, French, German, Italian, Portuguese, or Spanish. The Congress will deal with questions relating to the ethnology, archæology, and history of the New World. Further information from the General Secretary of the Organizing Committee, Sr. Lic. D. Genarò Garcia, Museo Nacional, Mexico, D.F.

Honours.

The University of Oxford has conferred the honorary degree of D.C.L. upon Mr. Frederic Harrison, M.A., Honorary Fellow of Wadham, LL.D. Aberd., and upon Mr. K. Ray Fletcher, B.A., New College, Master of the Drapers' Company.

* * *

Our last month's list of Cambridge honorary degrees must be corrected as follows:—

Sc.D. (not LL.D.): Sir Oliver Lodge, F.R.S.
Litt.D. (not LL.D.): Rev. Dr. G. A. Smith; Dr. C. H. Firth. Sir E. M. Thompson was to have received Litt.D. (not LL.D.), but was unable to be present.

* * *

The University of Durham has conferred the following honorary degrees:—

D.C.L.: Lord Strathcona; Mr. J. W. Hills, M.A., M.P. for Durham; Rev. Prof. H. Cowan, D.D., Aberdeen; Rev. Prof. James Cooper, D.D., Glasgow; Rev. Prof. J. Hope Moulton, Manchester; Mr. John Wilson, M.P. for Mid-Durham, General Secretary of the Miners' Association.
D.Sc.: Prof. H. F. Newall, Cambridge.
D.Litt.: Prof. J. Wight Duff, Armstrong College.
D.Mus.: Miss Ethel Smythe.
M.A.: Rev. J. E. Watts-Ditchfield.
M.Sc.: Prof. G. W. Caunt, Armstrong College.

THE University of Manchester has conferred the following honorary degrees:—

Litt.D.: Mr. William Warde Fowler, Fellow of Lincoln College, Oxford; the Rev. Edward Lee Hicks, Bishop-Elect of Lincoln.

D.Sc.: Mr. W. N. Shaw, F.R.S., Director of the Meteorological Office; Dr. Hugo Muller, F.R.S., Ph.D., LL.D.; Dr. Theodore W. Richards, Professor of Chemistry at Harvard.

Mus.D.: Mr. Felix Alexandre Guilmant, organist.

M.A.: Miss Mary Dendy, Manchester, and Miss A. E. F. Horniman, Manchester.

* * *

KNIGHTHOODS have been conferred upon Mr. Alfred Hopkinson, K.C., LL.D., Principal of Manchester University; Colonel G. Malcolm Fox, for many years Inspector of Physical Exercises to the Board of Education; and Mr. J. E. Parrott, LL.D., Head of the Educational Department of Messrs. T. Nelson & Sons, Publishers, Edinburgh.

Mr. John Struthers, C.B., LL.D., Secretary to the Scotch Education Department, has been promoted K.C.B.

* * *

THE University of Glasgow has conferred the following honorary degrees:

D.D.: Very Rev. Joseph Armitage Robinson, Dean of Westminster; Rev. Lewis Davidson, M.A., Minister of Mayfield United Free Church, Edinburgh; Rev. David Frew, B.D., Minister of Urr, Kirkcudbrightshire; Rev. William Goodman Edwards Rees, M.A., Vicar of Pendleton, Manchester; Rev. James Stevenson, Senior Minister of North Leith United Free Church.

LL.D.: Right Hon. Lord George Hamilton; John James Burnet, architect, Glasgow; Henry Dyer, M.A., D.Sc., C.E., First Principal of the Imperial College of Engineers, Tokio, and Emeritus Professor of the University of Tokio, Vice-Chairman of the Glasgow School Board; William Lorimer, Chairman of the North British Locomotive Company and of the Steel Company of Scotland, Assessor to the Lord Rector of the University Court from 1905 to 1908, and now Assessor to the Chancellor of the University; Gustaf Oscar Augustin Montelius, Professor at the National Archæological Museum, Stockholm; the Rev. James Robertson, M.A., D.D., Professor of Hebrew and Semitic Languages in the University from 1877 to 1907.

* * *

ON the recommendation of the National Academy of Sciences of the United States, Prof. Rutherford, Manchester University, has been awarded the Barnard Medal for meritorious service to science by the Trustees of Columbia College, New York.

* * *

SIR JOHN RHYS, Principal of Jesus College, Oxford, has been presented with a bust of himself by the Cymmrodorion Society. The bust is the work of Mr. D. Goscombe John, R.A.

* * *

MR. A. E. SHIPLEY, of Christ's College, Cambridge, is to have his portrait by Mr. William Nicholson presented to him in recognition of "his services to zoological teaching and research and his eminent usefulness to the University and to his College." Subscriptions, limited to two guineas, may be paid to the account of the Shipley Portrait Fund at the bank of Messrs. Barclay & Co., Limited, Cambridge.

* * *

IT is proposed to present to the Vaughan Library, Harrow School, a portrait of the Rev. Dr. Wood in commemoration of his Head Mastership. Mr. Arthur Hacker, A.R.A., has accepted the commission to paint the portrait. Subscriptions, limited to two guineas, may be sent to Mr. Eric Crake, 31 Norfolk Crescent, W.

Official Degrees.

THE University of Birmingham has conferred the official degree of M.Sc. upon Prof. F. M. Gamble, and the official degree of M.A. upon Prof. C. R. Beazley and Prof. H. L. Chatelain.

Endowments and Benefactions.

THE Gilchrist Trustees have made a second grant of £120 for two Scholarships in Oriental Languages in the University of London.

THE University of London has established a Carpenter Medal of the value of £20, to be awarded every three years for a thesis of exceptional distinction in Experimental Psychology (including the Physiology of the Central Nervous System and Special Senses) presented for a Doctor's Degree during the previous three years. Open both to internal and to external students.

* * *

AN influential meeting was held at the House of Lords, Lord Tennyson in the chair, with the object of founding and endowing a Chair of English Literature in the University of Cambridge.

* * *

THE Master of Trinity has given £250 to establish a yearly Prize for Latin Hexameters in Cambridge University.

* * *

THE late Prof. Campbell Brown has left to the University of Liverpool, subject to a life interest, a sum sufficient to endow a new Chair of Chemistry with at least £800 a year. Also £5,000 upon trust for the maintenance of laboratories and materials; £50 a year for an Advanced Scholarship in Chemistry; and the ultimate residue of his estate for further scholarships of £60 a year.

* * *

MR. E. M. HOLMES, of Sevenoaks, Kent, whose collection of seaweeds and algæ was purchased for Birmingham University some time ago by Mr. William Cadbury, has now presented to the Botanical Department another series of about two thousand beautifully preserved specimens, together with a number of books on this branch of botany.

* * *

THE sum of £1,000 has now been raised to found a scholarship for a girl leaving St. Margaret's School, Bushey (Clergy Orphan Corporation), to carry on her education elsewhere. The scholarship commemorates Miss Emily Baylee, who was for twenty-one years Head Mistress of the school. The movement was started in 1904.

Scholarships and Prizes.

OXFORD SCHOLARSHIPS.—Classics: December 6, Exeter, Oriel, Brasenose, and Christ Church; December 6, Queen's, St. John's, Hertford, and Keble; December 6, Lincoln; December 13, University, New College, and Corpus Christi; December 13, Merton; December 13, Trinity and Wadham; March 21, 1911, Worcester.—Mathematics: December 6, University, Merton, Exeter, New College, and Hertford; December 6, Balliol, Queen's, Corpus Christi, and St. John's; March 7, 1911, Magdalen, Brasenose, Christ Church, and Worcester.—Natural Science: June 28, Brasenose and non-collegiate students; March 14, 1911, Keble.—History: December 6, Queen's, St. John's, Hertford, and Keble; December 13, Magdalen and Corpus Christi; December 13, Lincoln; December 13, Trinity; March 21, 1911, Worcester; March 22, 1911, University, Merton, and Brasenose.—Hebrew: December 6, Wadham.—*Oxford Magazine.*

* * *

THE London County Council offer ten scholarships at the London School of Economics to students that have passed through a secondary school and are earning their living. Candidates must be resident within the County of London, and be twenty-one years of age on July 31, 1910.

Appointments and Vacancies.

MR. JOHN LINTON MYRES, M.A., F.S.A., Gladstone Professor of Greek and Lecturer in Ancient Geography, Liverpool Univer-

sity, since 1907, has been appointed to the new Wykeham Chair of Ancient History in the University of Oxford.

Mr. Myres was educated at Winchester and at New College, Oxford; took First Class in Classics, Craven Travelling Fellowship, Burdett-Coutts Geological Scholarship, and Arnold Essay Prize; was Fellow of Magdalen 1892-95, and Student and Tutor of Christ Church 1895–1907; and Lecturer in Classical Archæology 1903. He has travelled in Greece, Asia Minor, and Crete, excavated in Cyprus, and worked largely in and for anthropology. His "History of Rome," 1902, is well known and esteemed.

* * *

Mr. Selwyn Image, M.A., has been appointed Slade Professor of Fine Art, Oxford, in succession to Mr. C. J. Holmes, now Director of the National Portrait Gallery.

Prof. Image was educated at Marlborough and at New College, Oxford; took orders 1872, and was Curate 1875–80; has been Master of the Art Workers' Guild since 1900. Besides important artistic work, he has published a volume of "Carols and Poems." He was one of Ruskin's earliest students at Oxford.

* * *

The Chichele Professorship of International Law and Diplomacy at Oxford is vacant, through the resignation of Prof. Holland after thirty-six years' service.

* * *

At the University of London, University College, the following appointments have been made for next session:—Dr. F. W. Thomas, late Fellow of Trinity College, Cambridge, to be Lecturer in Comparative Philology; Prof. E. A. Gardner, M.A., to be Censor of Higher Civil Service Courses; Mr. Edmund G. Gardner, M.A. Cantab., to be Barlow Lecturer on Dante for three years and Lecturer in Italian for the session 1910–11; Mr. S. Y. Hsu, to be Jevons Memorial Research Scholar; Mr. D. E. Derry, M.B., Ch.B. Edinburgh, to be Assistant in the Department of Anatomy and Curator of the Anatomical Museum; Mr. E. K. Martin, M.B., B.S., F.R.C.S., to be Demonstrator in Anatomy; and Mr. P. V. Thomas, B.A., to be Assistant in the Department of French.

* * *

Dr. F. J. Haverfield, Camden Professor of Ancient History at Oxford, has been appointed Creighton Lecturer in the University of London for 1910–11.

* * *

Mr. Alexander Mair, M.A. Edin., Lecturer in Logic, &c., has been appointed Professor of Philosophy, in the University of Liverpool, in succession to Prof. MacCunn.

Mr. Mair carried off prizes and scholarships in Philosophy at Edinburgh; studied further at Paris and Marburg; was Assistant Lecturer in Philosophy and English Literature at Bangor, and Assistant to the Professor of Philosophy at Liverpool. Was elected Dean of the Faculty of Arts 1908. Has written numerous essays in Philosophy, and has a volume of them ready for press.

* * *

Prof. Sidney S. Dawson, M.Com., F.C.A., has resigned the Chair of Accounting in Birmingham University.

* * *

The University of Bristol will shortly appoint to the following offices:—Henry Overton Wills Chair of Greek, £600; Henry Overton Wills Chair of Physics, £600; Writers to the Chair of English, £500; Lectureship in Zoology (Headship of the Department), £250. Apply to the Registrar by September 10.

* * *

Cardiff University College requires an Assistant Lecturer in Greek. Apply to the Registrar by July 7.

* * *

Lectureships in Commerce, Economic History, and Accounting in the Queen's University of Belfast will be filled at an early date. Apply to the Secretary to the Commissioners, Queen's University, Belfast.

University College, Exeter, requires a Lecturer in Physics. £175. Apply (special form) to the Registrar by July 15.

* * *

The University of London requires an Assistant in German, specially qualified to teach science students. £150. Apply to the Principal.

* * *

Armstrong College, Newcastle-upon-Tyne, requires a Lecturer in Commercial and Industrial Economics. £250. Apply to the Secretary.

* * *

Mr. Mark Hovell, B.A, has been appointed Assistant Lecturer in History, and Mr. H. M. Hallsworth, M.A., B.Sc., Assistant Lecturer in Economics, in Manchester University.

Mr. Hovell graduated in the Honours School of History in 1909, and was awarded the Graduate Scholarship in History. Mr. Hallsworth gained the Jevons Studentship for Economic Research, and has collaborated with Prof. Chapman in a work on Unemployment in Lancashire.

* * *

Mr. Douglas Knoop, M.A., Assistant Lecturer in Economics in Manchester University, has been appointed Lecturer in Economics in Sheffield University.

* * *

At Bedford College for Women, Miss Sara Melhuish, M.A. Vict., Final Honours School of History, has been appointed Head of the Secondary Training Department, in succession to Miss Mary Morton, M.A. Miss M. Saltmarsh (Mathematical Tripos 1905, First Class, Part II, Natural Science Tripos 1906, now working in the Cavendish Laboratory under Sir J. J. Thomson on the spectrum of argon) has been appointed Demonstrator in Physics; Miss Ida Slater, B.A. Trinity College, Dublin (Newnham College 1900–1904, Natural Science Tripos, Class I, Parts I and II, Geology, Bathurst Student, one year, 1904, Harkness Scholar one year), and Miss Bowen-Colthurst (First Class Honours Geology, Oxford, 1905, formerly Demonstrator in Mineralogy at Queen's College, Cork), Demonstrators in Geology.

Miss Melhuish, who was formerly tutor at Somerville College, Oxford, has been, since 1907, Lecturer in Education and tutor to the women students in the Training College of the University of Liverpool.

* * *

In the Home Science Department of King's College for Women (Kensington), Marie Michaelis, M.A. Dubl., Cambridge Natural Science Tripos, has been appointed Lecturer in Science and Geography at the Maria Grey Training College; and Miss Marjory Stephenson, Cambridge Natural Science Tripos, Teacher in Science at the Gloucestershire School of Domestic Science, has been appointed Demonstrator in the Kitchen Laboratory and in Domestic Arts.

* * *

Miss Turner has resigned her post as Assistant Mistress of Method in the Day Training College of Leeds University; and Miss E. M. Blackburn, M.A., and Miss Ethel Parry, M.Sc., have been appointed Assistant Mistresses of Method.

* * *

Miss Ada Levett, Assistant Mistress, Edgbaston High School, has been appointed Resident Tutor in Modern History at St. Hilda's Hall, Oxford.

Miss Levett was a Scholar of Lady Margaret Hall, and took a First Class in Modern History 1907; was awarded a Gilchrist Scholarship, studied at the Sorbonne, and taught for some time at Lady Margaret Hall before going to Edgbaston.

* * *

Mrs. Henry Sidgwick is about to retire from the Principalship of Newnham College, after nineteen years' service. She will be succeeded by Miss Katharine Stephen, daughter of the late Sir James Fitzjames Stephen, who has for some years been Vice-Principal of the College.

The Rev. W. H. Griffith Thomas, D.D., the Principal of Wycliffe Hall, Oxford, has been appointed Professor of Apologetics at Wycliffe Hall, Toronto. He is succeeded by the Rev. H. G. Grey, M.A., of Wadham College, who held the post 1900–5.

* * *

Mr. J. W. Bews, M.A., B.Sc. Edin., Lecturer on Plant Physiology, Edinburgh University, has been appointed Professor of Botany and Geology in the University of Natal, Pietermaritzburg.

* * *

Mr. J. W. Holme, Lecturer in English and School Method, Dudley Day Training College, has been appointed Professor of English in the University of Calcutta.

* * *

The Rev. Dr. Gray, Warden and Head Master of Bradfield College, has resigned, unfortunately owing to ill-health.

* * *

The Rev. John Dugdale Best, M.A. Cantab., Principal of the Chester Training College since 1900, has been presented to the Rectory of Sandon, near Chelmsford.

* * *

The Rev. Lionel G. B. J. Ford, M.A. Cantab., Head Master of Repton School, has been appointed Head Master of Harrow School.

Mr. Ford was educated at Repton (head of the school) and at King's College, Cambridge. He was a Scholar of King's, took a First Class in the Classical Tripos 1887, and gained the University Reading Prize 1887, and the first Chancellor's Medal 1888. He was a master at Eton for thirteen years before his appointment to Repton in 1901. Captain of his school and college cricket eleven, he has also written on athletics. He was appointed Examining Chaplain to the Bishop of Southwell in 1903, and he has been Select Preacher at Cambridge in 1899, 1902, 1904, and 1906.

* * *

Mr. George Haydn Keeton, B.A. Cantab., Sixth Form Master, Fettes College, has been appointed Head Master of Pocklington Grammar School.

Mr. Keeton was educated at Oakham and at Emmanuel College, Cambridge, and took a First Class in the Classical Tripos 1900. After some experience at Reading School he was appointed to Fettes 1903. He was in the University Fifteen 1899–90, and in the England Fifteen 1904.

* * *

The Rev. R. H. Malden, M.A., Fellow and Lecturer of Selwyn College, Cambridge, has been appointed Principal of the Leeds Clergy School, in succession to the Rev. Canon J. G. Simpson, D.D.

Mr. Malden was educated at Eton and at King's College, Cambridge, where he graduated in the First Class in both parts of the Classical Tripos. After serving three or four years as Curate of St. Peter, Swinton, he was appointed to Selwyn College.

* * *

Miss E. E. M. Creak, Head Mistress of King Edward's High School for Girls, Birmingham, will retire at Christmas, after twenty-seven years' service.

* * *

An experienced Mistress is required at Goole Secondary School (Mathematics). £120. Apply to the Clerk of the Governors, 10 Victoria Street, Goole, by July 7.

* * *

Mr. James D. M'Petrie, M.A. Aberd., Rector of Alva Academy, has been appointed Rector of Keith Grammar School.

* * *

A Vice-Principal is required for the Cambridge County School of Arts and Crafts. £130 a year, rising to £150. Apply to the Education Secretary, County Offices, Sidney Street, Cambridge.

* * *

The Council of Ruskin College has confirmed the appointment of Dr. Gilbert Slater, M.A. Cantab., D.Sc.Econ. Lond., as Principal of the College.

Literary Items.

Mr. Gordon Home, author and painter, has just joined the editorial staff of Messrs. Adam & Charles Black as literary and artistic adviser. His new book, "The Romance of London," is almost ready for publication. It is to be illustrated in colour and will be issued at a popular price by Messrs. Black.

* * *

The first volume of the "Geographical Studies" to be issued in connexion with the London School of Economics and Political Science is about to be published by Messrs. A. & C. Black at a popular price. It will deal with the district comprised in the Reigate sheet of the 1-in. Ordnance Survey, and will contain numerous maps and illustrations. The author is Miss Ellen Smith, of the Skinners' Company's Schools, London, and there will be a preface by Mr. H. J. Mackinder, M.P.

* * *

The Selborne Society has issued the third of a series of leaflets on "The Brent Valley Bird Sanctuary." This deals with curious nesting places, and, like those previously issued, is profusely illustrated, having been reprinted from the *Country Home*. Copies may be obtained from Mr. Wilfred Mark Webb, 42 Bloomsbury Square, W.C., post free for three halfpenny stamps.

General.

The Prime Minister will deliver his Rectorial Address at Aberdeen University in the first half of next session—that is to say, before Christmas.

* * *

Prof. Firth, of Oxford, delivered the Rede Lecture at Cambridge (June 14). Subject: "The Parallel between the English and American Civil Wars."

* * *

Sir Donald MacAlister, M.D., has been appointed Chairman of the Belfast Commissioners for the administration of the Irish Universities Act, 1908, in the place of his Honour Judge Shaw, deceased.

* * *

Dr. J. Wilson Robertson, C.M.G., D.Sc., LL.D., Commissioner of Agriculture and Dairying for the Dominion of Canada and late Principal of the Macdonald Agricultural College, Montreal, has been appointed Chairman of the Commission to investigate the need for Technical Education in Canada.

* * *

The India Society has been formed "to promote the study and appreciation of Indian culture in its æsthetic aspects." "Politics are absolutely excluded from its scope." It proposes to publish works showing the best examples of Indian architecture, sculpture, and painting, both ancient and modern, to co-operate with those whose aim it is to keep alive the traditional arts and handicrafts still existing in India, and to assist in the development of Indian art education on native and traditional lines. Mr. T. W. Rolleston, Ardeevin, Christ Church Road, Hampstead, N.W., is temporary Honorary Treasurer and Honorary Secretary.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, on May 18. Present: Rev. Dr. Scott, Vice-President, in the chair; Prof. Adams, Dr. Armitage Smith, Mr. Bain, Mr. Barlet, Mr. Baumann, Rev. J. O. Bevan, Mr. Brown, Mr. J. L. Butler, Mr. Charles, Miss Dawes, Prof. Dixon, Mr. Eve, Mr. Hawe, Miss Jebb, Rev. R. Lee, Mr. Marx, Dr. Moody, Mr. Pendlebury, Mr. Pinches, Miss Punnett, Mr. Rule, Mr. Starbuck, Mr. Vincent, and Prof. Foster Watson.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the number of entries for the Midsummer Certificate and Lower Forms Examinations was about 4,400.

Saturday, July 16, was fixed as the date of the next Ordinary General Meeting of the members of the College.

On the report of the Examination Committee, it was resolved that, after March, 1911, the following alterations should be made in the Regulations for the Certificate Examinations:—(1) That it should no longer be necessary to obtain a certain aggregate of marks as a condition of obtaining a certificate of any grade; (2) That the pass-minimum in individual subjects should be raised from 30 per cent. to 33⅓ per cent.; (3) That the subject of Arithmetic should no longer be obligatory in any grade; (4) That the First Class Arithmetic paper should not be divided into separate parts. Mr. E. C. Jee, D.Sc., F.I.C., F.C.S., was appointed one of the College Examiners in the subject of Chemistry.

An Interim Report of the Education Committee was submitted, stating the progress that had been made with the consideration of the numerous suggestions that had been offered by members for extending the work and usefulness of the College.

The draft Report of the Council to the General Meeting was considered, and was referred to the President, Vice-Presidents, and Dean for final revision.

The following persons were elected members of the College:—

Mr. J. Greenwood, "Malvern," Colney Hatch Lane, Muswell Hill, N.
Mr. H. Holman, M.A. Camb., 8 Hornsey Lane, N.

The following were admitted to the privileges of membership, under Section II, cl. 5 of the By-Laws:—

Mr. E. A. Lambert, L.C.P., The Grammar School, Retford.
Miss M. T. O'Dowd, A.C.P., St. Joseph's Convent, St. Lucia, B.W.I.

The following books had been presented to the Library since the last meeting of the Council:—

By the BOARD OF EDUCATION.—Educational Pamphlets, Nos. 18 and 19 (Compulsory Continuation Schools in Germany, and the Course System in Evening Schools).
By EDWARD ARNOLD.—Cumming's Select Letters and Extracts from Cicero; Quiller-Couch's Historical Tales from Shakespeare.
By G. BELL & SONS.—Baker and Bourne's Public School Arithmetic.
By MACMILLAN & CO.—Ceppi's Dumas' La Pistole; Hutchison's Narratives from Motley's Rise of the Dutch Republic,
By METHUEN & CO.—Wilmot-Buxton's Stories from Old French Romance.
By J. MURRAY.—Proceedings of the Classical Association, 1910.
By the OXFORD UNIVERSITY PRESS.—Select English Classics (Old Ballads, and Seventeenth Century Characters).
By ALSTON RIVERS.—McNair's Guide to the Study of English History, Part II, 1485–1688.
By RIVINGTONS.—Morich's Passages for Advanced French Prose.
Calendar of University College, Cork, 1909–10.
Register of Members of the General Council of the University of Glasgow, 1910.

IN *Manual Training* for June, Mr. J. Arrowsmith writes:—

The Educational Times of May 2 contains an appreciative article by J. S. Thornton, B.A., on Otto Salomon. May the earth lie lightly on him—the man to whom the younger generation of children owes so much! To him more than to any other man is due the credit of introducing into education methods of a practical and common-sense character. It has taken thirty years for ideas which every one admits to be sound to establish themselves in our schools, such a hold has tradition upon the ordinary mind.

Otto Salomon's work will live. The spirit that he breathed into the schools will sweeten and refresh; it will break down the musty dust-laden cobwebs of medievalism, and in that purer atmosphere the children shall learn to think clearly and to keep their faces to the light.

"THE NEWER EDUCATION."

MR. R. BLAIR, M.A., B.Sc., Education Officer to the London County Council, gave an address on "The Newer Education" to the members of the Federated Associations of London Non-Primary Teachers at the Polytechnic, Regent Street (May 28). He said that the adverse criticisms sometimes passed on the results of modern elementary education arose from ignorance of the progress that had really been made in this direction during the last fifty years. There was now hardly an illiterate person in the country, and, moreover, the facts that crime had decreased, that sanitary conditions had improved, that the death-rate had fallen, and that the funds of savings banks and provident societies showed a steady increase, must be all attributed indirectly to the work done in elementary schools. We were in this respect far ahead of Germany.

An important part of the recent work of the London County Council had been the institution of its scheme of scholarships for children fit to pass from the elementary to the secondary schools. The full development of this scheme was yet to come, for there was a distinct need that the child, leaving the secondary school at the age of sixteen, and not wishing to take up elementary-school teaching, should have some course of definite technical training. As far as wage-earning capacity was concerned, boys and girls leaving secondary schools at this age were in no better position than children leaving the elementary schools at the age of fourteen.

Mr. Blair considered that the numerous Acts passed since 1902, bearing on conditions of child life, ran parallel with a development of wider ideas of Empire and of British citizenship. The child, moreover, was now considered as a national asset and as the unit of citizenship; as such he must be made physically fit for the education that he was compelled to receive. The national conscience must be awakened with respect to the terrible waste of child life in factories.

After reading certain unsatisfactory examiners' reports of work in some secondary schools, Mr. Blair stated that there was still a tendency for this work to be too academic in nature, and that secondary-school teachers must strive to correlate their teaching with the facts of life, and remember that upon them lay a large part of the responsibility for training the child for his future duties as a citizen of the Empire. Some statesmen considered that before long we might be called upon to meet a serious national emergency, and the way in which we should meet this emergency would depend on the work of the teachers both in the elementary and in the secondary schools.

A discussion followed the address. Mr. Blair, in replying to the vote of thanks, stated that his recent visit to Germany had shown him that Germany and England were working on different lines, but that English initiative was far better than German organization; at the same time, the national conscience should be awakened to the fact that for this initiative our submerged masses paid a terrible penalty.

ONE of the features of the proposed reform of the higher education of girls in Prussia (says the Berlin correspondent of the *Morning Post*) is the appointment of women as heads of the State high schools for girls. A large number of male teachers in *Gymnasia* (State high schools where at present only boys are admitted) have petitioned the Prussian Parliament not to sanction such appointments. The petitioners declare that to place a man in a position subordinate to a woman is a gross insult to his manhood. They contend that experience has proved that women are not successful as heads of great schools, and that the introduction of such a system would produce dissension among the teaching staff. They say, further, that if leading positions in the scholastic world are placed in the hands of women the latter will undoubtedly advance claims to similar preferment in other professions, and that if such claims are admitted the welfare of the State would be imperilled. Counter petitions have been presented by various women's associations, in which it is pointed out that there have always been women at the head of educational establishments, that experience has proved their efficiency in such positions, and that women are the best teachers of girls. The Education Committee, which has studied the matter, has decided in favour of the views advanced by the female petitioners. The Minister for Education is in entire agreement with the decisions of the Committee, to the extreme regret of several leading newspapers, which contend that the attitude of the Minister means the encouragement of feminism by the State.

REVIEWS.

Russian Literature.

A Literary History of Russia. By A. Brückner, Professor of Slavonic Languages and Literature in the University of Berlin. Edited by Ellis H. Minns, M.A., late Fellow of Pembroke College, Cambridge. Translated by H. Havelock, M.A. (12s. 6d. net. Fisher Unwin.)

This recent addition to Mr. Fisher Unwin's "Library of Literary History" furnishes a comprehensive and satisfactory account of Russian literature as a whole—perhaps the fullest and best that has yet been submitted to Western Europe. It traces the continuous development of literary expression in the face of difficulties that amaze the enlightened Western mind; and, by supplying environment, means of comparison, and side-lights from less known writers, it brings into clearer light the qualities and the literary relations of the more famous Russian authors whose works and reputation have become more or less familiar to us. The material and spiritual life of Russia differs so widely from our own experience as to render necessary an interpreter, and to make it by no means easy to find a competent interpreter. "It is perhaps natural," says Mr. Minns, "that, when found, the interpreter should prove to be a Pole, a hereditary member of the European world, yet, as a Slav, capable of entering into the minds of fellow-Slavs." Still, he has a certain bias, as Mr. Minns frankly notes: "for a Pole it is difficult to be quite fair to the Old Russia with which Poland carried on a life and death struggle for so many centuries; especially is it hard for him to do justice to the Church, with its Byzantine traditions." Consequently he takes a perverted view of the missionary work of Cyril and Methodius among the Slavs, and "he hurries through the whole early period, underestimating what intellectual movements there were (Russia had its heretics even in the fourteenth century, and heresy must mean some independent thought), and all along fails to bring out the good side of the Church," which, in spite of its Russian origin and traditions, became a national institution, and in more than one time of stress stood for the unity of the nation. No doubt; but the defect may be better supplied by a sympathetic specialist, and meantime there is more urgency for a critical exposition of the modern than of the medieval literature.

Through the sixteenth and seventeenth centuries the anticipations of coming reform are effectively traced, though "again we miss a sympathetic appreciation of the picturesque side of Old Russian life." Under Peter the Great, whose historical position is trenchantly and faithfully depicted, and who "created the opposition between the old and the new languages—an opposition which for a full century occupied Literature"—the clerics recede into the background permanently, and the new secular literature follows in the main German and French models, the latter tendency being the more important. Tatíshchev and Lomonósov, practical and scientific, represent the spirit of Peter and of German thought; Kantemír, Tredioków sky, and Sumarókov represent the influence of French literature in different forms, the last-mentioned writer being "to his countrymen really and truly Corneille, Racine, and Voltaire." Under the dilettante Empress Catherine II, the French and German currents still ran on, the former guided by pure reason, the latter driven by mystical and sentimental impulses. The German influences were reinforced by an English strain; Freemasonry, which had been introduced into Russia by Englishmen, and even in the time of Elizabeth had found individual adherents in the highest circles, was substantially diffused by the persecution of Catherine. Russian freemasonry was chiefly ceremonial at St. Petersburg, but at Moscow it followed other aims, political and social, such as those of the Illuminati. More fruitful for literature, as such, was the drastic change introduced by Karamzín, "the first Russian man of letters whose influence was a creative force and a model for the whole reading world, and at the same time its first favourite," the future historiographer of the Russian State. "At bottom, however, the paths of literature and the 'people' (the Russian expression distinguishes between the whole people and the peasants) nowhere ran side by side. Literature was eliminated from general life, and confined to a small circle, and really floated in the air, having struck no root in national soil." The writers "think in French and write in Russian, especially in prose, which, in spite of Karamzín, most emphatically lags behind the poetical diction."

The accession of Alexander brought an extended freedom to literature, notwithstanding the obscurantist assaults of "a mummy of St. Catherine's," Admiral Shishków, who, "as he could not ruin the Russian fleet, tried it on with Literature," and especially against Karamzín. Krylóv, through his "Fables," "was the first to get into touch with the pointedly frank speech of the people." Political developments bore down French and German influences. "The spirit of antiquity has always remained alien to Russia": "not till the study of the classical writers had lost all objects, and only maintained itself in Europe as a tradition, which has become more obstinate in proportion as it has lost its ground of utility, was it, thanks to the triumvirate, D. Tolstoy, Katków, and Leóntiev, included in the most comprehensive way in the curriculum with the express object of stupefying the young and making studies more difficult." And Romanticism, as exotic in Russia as Classicism, and never clearly understood, gradually lost ground. "It became Pushkin's merit, not only to have helped the new tendency to a speedy and final victory, but to have paved the way successfully to the highest goal, the creation of a national Literature."

With Pushkin, we are in the nineteenth century, and two-thirds of the volume are yet before us. "Pushkin is the national poet of the Russians, although his poetry is by no means national. . . . All narrowness is alien to him, and the power of adaptation or transformation of this virtuoso of form is simply astounding. . . . The indescribable music of verse, its full sensuousness—plasticity, too, with nothing blurred or indistinct, as with Zhukóvsky—are coupled with genuine and deep feeling, sincere melancholy, and lively whims; if he lacks the passionate glow of love, as of hate, yet in his creations he always achieves that balance which he so painfully missed in life. . . . A more genuine artist the world has not seen." The Pushkin Pleiad—Delvig, Yazýkov, Baratýnsky, Venevítinov, Koslóv, Podolínsky, Polezháev—if romanticists, are romanticists with a difference: their romanticism is cramped and petty; "it smells regularly of Arakchéev's hereditary machines, a romanticism of sergeant-majors and clerks." A truer Romanticist is the ill-fated Lérmontov, "the most anti-social Russian poet," hopelessly pessimist, though he is distinguished from the Romantics by his love for despised prose: he wrote the first Russian psychological novel. About the beginning of the thirties appeared the indigenous satirical and historical novel, with most complicated plot and tension of curiosity. "The first Russian comedy after the satire of Griboédov and the first novel of manners—the first products of the realistic, or, as Bulgárin soon called it, 'natural' tendency, are the work of Gógol." In this connexion Prof. Brückner illustrates the operation and effects of the Russian Censorship: "the peasant became really free in 1861, the writer contents himself to this day with the mere show of freedom." "Gógol is psychologically an exceptionally interesting problem, full of apparent contradictions, and least known by those who thought they knew him best." "The desire of the critics for a truly national work was gratified, not by Pushkin or Lérmontov, but first by Gógol: free not only from all imitation, but even prompting by others, drawn from Russia's innermost, it could say of itself, 'Here is Russia.'"

After a striking survey of literary and journalistic criticism (not only of the work of Bélinsky) of the Slavophile movement (with a special account of Alexander Herzen) and of the reaction of 1866–77, Prof. Brückner proceeds with the novelists at some length. Iván Turgéner, "the pioneer of Russian literature in the West," might be classed, but for chronology, "as the proper novelist of the Nicholas period, the singer of Old Russia before the emancipation." "Within this narrow limit he has created what is imperishable, yet his works do not prompt us to deeper contemplation. He is no inconvenient reminder, after the manner of Tolstoy and Dostoévsky; but then he is a complete master of form and stands high above Tolstoy and Dostoévsky, to whom requirements of form often seemed quite unknown, and has been equalled, let alone surpassed, by no Russian and but few foreigners." Tolstoy's work "is the largest autobiography in existence": he talks almost exclusively of himself. Prof. Brückner sees no "change" in Tolstoy: "there can hardly be a more consistent, more unvarying personality than he, scarcely another man who, as he, has all his life long held fast to the same ideas." "Tolstoy is physical and moral health incarnate, the man not less than his art, the poet of earthly life alone, a mighty gnarled oak firmly rooted in native soil, broadly and majestically overarching it—without tendency upwards, towards the supernatural, which is totally alien to him, in which lies his limitation. But within these limits he is the sovereign unsurpassed artist"—"one of the greatest epic poets of all times." Dostoévsky is mystic and prophet, "the poet of the sick, not normal, man," "a unique

(*Continued on page 278.*)

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phenomenon" in Russian—nay, in European—literature, "though at the same time a most significant, or rather disturbing one." "Moral or artistic equilibrium or calm are unknown to him." "What most enthrals us in him is his fervent love, his respect for man as man; what writer has created more charming, innocent, or unhappy children? Dostoévsky was a pitier of all." The minor novelists and the more important figures in other departments of literature are reviewed; and we note that Prof. Brückner has to complain of the race of *traddutori-traditori*. No doubt his judgments will be questioned here and there, but his general survey will be most welcome to all students of literature.

"The Acharnians."

The Acharnians of Aristophanes. The Greek Text revised, with a Translation into corresponding metres, Introduction, and Commentary. By Benjamin Bickley Rogers, M.A., Hon. D.Litt., Barrister-at-Law, sometime Fellow, and now Honorary Fellow, of Wadham College, Oxford. (10s. 6d. Bell.)

Another volume of Dr. Rogers's masterly edition of the great comic poet will be another delight to scholars and to general readers. It proceeds on the same plan and is characterized by the same qualities as its predecessors. The introduction discusses at some length a number of questions connected with the earlier plays of Aristophanes—"The Banqueters" and "The Babylonians"—as well as with "The Acharnians." About the poet himself he finds very little information beyond what may be gleaned, with more or less risk, from his comedies; but he examines carefully the indications of the date of his birth, and thinks it is "so probable as to be almost certain that he had in his veins some strain of Aeginetan blood." "The Banqueters" (B.C. 427) is lost, and there is no means of reconstructing the plot; but "a good deal of its general character and aims" is discoverable, oddly enough, from a treatise of Galen's on the writings of his famous predecessor, Hippocrates. Like its "sister comedy," "The Clouds," it upheld the ancient and deplored the modern theory of education: "the object of the old system was the formation of character; the object of the new was to make men sharp-witted and argumentative, and its effect was to render them irreverent and unprincipled."

"The Babylonians" (B.C. 426) survives only in minute fragments, but some indication of its scope and nature is furnished in "The Acharnians," where Aristophanes mentions Cleon's attack upon him for satirizing him in the second comedy, and offers a defence against Cleon's "calumnies" (διαβολαί). Dr. Rogers goes into the matter, and concludes "that two of the grounds, probably the two principal grounds, for which the poet took the people to task in his second play were (1) their subservience to the orators and (2) their allowing the demagogues to evil entreat the subject allies." "And that is substantially all that we really know about the Babylonians." "The Acharnians" (B.C. 425), the oldest surviving Greek comedy, if not one of the poet's chief masterpieces, yet gives "the most comprehensive idea of the range of Aristophanic satire," exhibiting more variety of incident than any of the others. Dr. Rogers analyses the play, discussing points of importance as they arise—the ἐκκλησίαι, parallelism between the history of Thucydides and the historical dramas of Aristophanes, the Dionysian festivals city and rural, the eccyclema, contrast between the positions of Megara and Boeotia in relation to the War, &c.; and he passes in review the Latin versions of comedies of Aristophanes.

The verse rendering on the pages opposite to the Greek text is worthy of the original. It is surprisingly resourceful, spirited, and exact; and it reads as an independent English poem. It is a triumph of the translator's art. The only deduction we should care to suggest would be in reference to the dialectal speech of the Megarian and the Boeotian. While Prof. Tyrrell and Mr. Billson made the Megarian talk as a Scotsman and the Boeotian as an Irishman, Dr. Rogers in both cases has recourse to Scots. But his Scots, though remarkably clever for a Sassenach, is literary and composite, such as was never spoken by any individual Scotsman. Still, it is good enough for the Southron, and it serves its distinctive purpose. The appendix of critical notes, as well as the commentary running at the foot of the text, exhibits scholarly industry and masculine judgment. The vindication of Elmsley from charges of plagiarism from Porson (whose "marvellous skill as a textual critic is quite unapproached and unapproachable") is very welcome, and deserves to be specially noted. "And indeed Elmsley needed not to borrow of any man." The whole work is most capable and thorough—a signal credit to English scholarship.

For the Electrical Engineer.

Electricity. By H. M. Hobart, B.Sc., M.Inst.C.E. (Constable.)

Our knowledge of the science of electricity has so rapidly developed during recent years that the excellent leading treatises which at one time were sufficient to satisfy the demands of the average reader are left far below the standard of information requisite at the present time, although they remain, nevertheless, well able to afford substantial assistance in the preparatory training of the student of electrical engineering. More than in many another direction there may then be room for addition to the supply of already existing good elementary text-books. The writer of the present volume set himself the task of meeting what he felt to be a real and increasing demand on the part of the prospective electrical engineer. His work is absolutely modern in character, and he has claimed for himself the right to break away from the old conventional methods of dealing with the subject. He has, moreover, been able to view it both from the standpoint of the teacher and from that of the professional expert. The work, as a text-book, is supposed—so we are told in the interesting preface—to be used in conjunction with other treatises. In that way the reader will enhance the value of the course laid down in it. Certain broad principles governed the author's selection of material from the vast store available. First he endeavoured to choose as topics of discussion those best calculated to illustrate fundamental truths and to form a firm basis on which to raise a superstructure of more advanced knowledge. Secondly, he was actuated by the desire to supply a profitable investigation of those portions of the theory of the science concerning which it would not be easy to point to other text-books as sources of the necessary information.

The generation and conduction of electricity and the relative conductivity of various substances, energy with its indestructibility and electricity as a special form of energy, the Kelvin as a suitable unit of energy, continuous electricity and Ohm's law, the magnetic field, alternating electricity, &c., form some of the various interesting and important themes selected for consideration. Desirous that the work may have a value beyond that of being a manual for the student of electrical engineering, the author has spared no effort to make it useful as a work of reference, and for this purpose he has supplied numerous comparative tables of details that may readily be consulted. The volume is profusely illustrated. On the whole, the diagrams and graphs exhibit only a moderate degree of finish; one or two, however, surpass the generality in this respect. We are glad there is a good index; many authors of mathematical text-books dispense with one, thereby depriving their readers of a most valuable addition to every text-book of any importance.

GENERAL NOTICES.

CLASSICS.

The Iliad of Homer. Translated into English Prose by E. H. Blakeney, M.A., Head Master of the King's School, Ely. Vol. I, Books I–XII. (5s. Bell.)

We have noticed the separate instalments of this work from time to time with general approval and are glad to have them collected into a single volume. Mr. Blakeney is very modest about his expectations of the utility of his translation; but he is sensible and manly enough not to offer apologies for its existence. Never before, probably, has any of the many versions of Homer been worked out with more scrupulous care to find the precise meaning, and the archaic tinge of style is not unpleasing, though not uniformly successful—at any rate, it does not degenerate to a preciosity we wot of. We do not consider it a virtue to have "purposely refrained from consulting prose versions." Why not consult prose versions as well as verse renderings or commentaries? Why not search out and annex the best wherever it was to be found, or at least take advantage of suggestions? It is futile to argue over the transliteration of proper names. But, after all, Homer's people are not Romans, and he knows nothing of "Achilles." He would probably be horrified at the docking of "Priam" and "Diomed," and it is difficult to comprehend why Mr. Blakeney cannot bring himself to write "Odysseus" and "Olympos," but comfortably sets down "Odusseus" and "Olumpos." He has the grace, however, to acknowledge that, if he had to start afresh, he would probably transliterate exactly throughout: but "the pages are stereotyped"—as if the plates were not for punching holes in. The foot-notes are very useful; the literary comparisons are agreeable and suggestive. Altogether this rendering will make a place for itself. The reader will learn pleasantly what Homer really says.

(*Continued on page* 280.)

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(*Continued on page* 282.)

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EDUCATION.

The Teaching of Scientific Method, and other Papers on Education. By Henry E. Armstrong, LL.D., Ph.D., F.R.S., Professor of Chemistry in the Central Technical College of the City and Guilds of London Institute. Second edition. (5s. net. Macmillan.)

We are very glad to see Prof. Armstrong's essays in a second edition. The title-essay, forming chapters i and xviii, appeared first in the *Educational Times* (May 1891). There are now added to the original volume two fresh articles: a paper on "The Correlation of Mathematical Teaching with other Work in Schools," and a criticism of school method, with suggestions for its improvement. Also a preparatory essay, uselessly pessimistic and usefully belligerent. Naturally enough, Prof. Armstrong "feels much disappointment" at the slowness of reform: indeed, he thinks the cause "has suffered repression rather than encouragement." So hard is it even for the philosopher to be philosophic! But educationists may take note of this sentence, and give another push forward: "If boys and girls left school properly aware what an experiment is, what is involved in making one, how very far from easy it is to make a real experiment; if they acquired a true sense of exactness in work and in argument; the teaching given in schools would be of great value in after-life, as life is one big never-ending experiment." We again strongly recommend this fresh and vigorous volume, were it only because it is provocative of contradiction—that is, thought.

The Girls' School Yearbook (Public Schools). Issued under the direction of the Editors of "The Public Schools Yearbook." (2s. 6d. net. The Year Book Press, c.o. Swan Sonnenschein & Co.)

This useful annual now appears as "the official Book of Reference of the Association of Head Mistresses." It is in its fifth year, and admirably serves its object, which is "to provide a record, at once comprehensive and concise, of all matters of interest to parents, schoolmistresses, and girls in connexion with Secondary Education." Besides ample information about the leading girls' public schools in Great Britain—"public" as being under a governing body—copious particulars are furnished concerning the various professions and openings for girls after they leave school. The work has been laboriously and carefully brought up to date.

The Japanese Department of Education have prepared and issued, in connexion with the Japan-British Exhibition, a considerable brochure describing the different forms and stages of *Education in Japan*. It is divided into ten parts, written by different authors, and covering the whole subject. The objects illustrating the various aspects of education hold a large and prominent place in the Exhibition; but the pamphlet goes far beyond the scope of a guide-book—it is rather a comprehensive but concise treatise. It will be found instructive and interesting by many that will not see the Exhibition at all.

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FIRST GLANCES.

EDUCATION.

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Cambridge University Higher Local Examinations: Regulations for the Examinations in December, 1910, and in June, 1911.

City and Guilds of London Institute: Report of the Council.

Domestic Science, Association of Teachers of.—Annual Report.

Johns Hopkins University Circular. No. 4, 1910, The Economic Seminary, 1909–10. 3d. King.

L.C.C.—Report of the Chief Examiner on the Examination for Junior County Scholarships, 1910.

N.U.T.—Report for 1910. 1s.

New South Wales: Department of Public Instruction.—Report following upon Observations of American Institutions (the Rural School—Education for Industrial Purposes—Secondary Education—the University as a Public Institution). By P. Board, M.A., Director of Education.

Oxford Local Examinations: Division Lists for Examination held in March, 1910—Senior Candidates. 6d. Parker.

Private Venture Schools, Inspection of. Substance of a Speech delivered to the Bucks County Council by Mr. Wynford Dewhurst.

MISCELLANEOUS.

Field Experiments in Staffordshire and Shropshire and at the Harper Adams Agricultural College, Newport, Salop. Joint Report for Season 1909. Staffordshire County Council.

Grieben's Guide Books: Vol. 128, Dresden and its Environs. 1s. 6d. net. Williams & Norgate.
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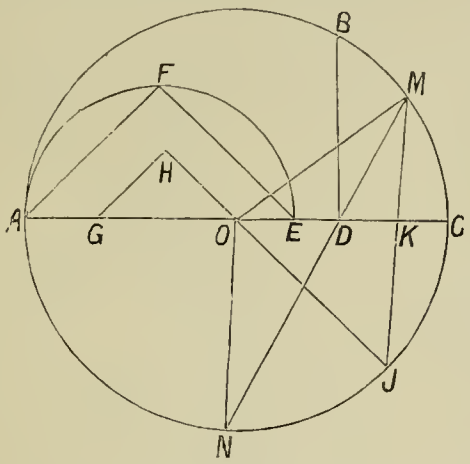
War as the Mother of Valor and Civilization. By Andrew Carnegie. The Peace Society of the City of New York (507 Fifth Avenue).

MATHEMATICS.

16874. (Major C. H. Chepmell, late R.A.)—Given two sides of unequal length (r and s, $r > s$, $s \not< \frac{1}{5}r$), construct, by ruler and compasses, a triangle which shall have the angle included between the two given sides four times the angle opposite the lesser.

Solution by the Proposer.



With centre O, radius OA ($= r$) describe a circle ABC. Draw diameter AC, and on it cut off OD ($= s$). Bisect OD in E, and on AE as diameter describe the semicircle AFE.

Draw ordinate BD, and in the semicircle AFE place AF ($=$ BD). Join EF, and on EA lay off EG ($=$ EF). Then

$$EG^2 = (r+\tfrac{1}{2}s)^2-(r^2-s^2)$$
$$= \tfrac{5}{4}s^2+rs \text{ .....(1).}$$

With O and G as centres, and radii $= s$, describe circles intersecting in H (see *note*). Join HO and produce to cut the circle ABC in J.

On OJ at J make $\angle OJK = \angle COJ$. Produce JK to cut circle in M. Join OM. Now obviously the three triangles GHO, OKJ, JOM are all similar, and

$$s.MJ = r.GO \text{ .....(2),}$$
$$r^2 = MJ.KJ \text{ .....(3).}$$

Join MD and produce to cut the circle in N. Join ON. Then

$$\angle DON = 4\angle OND,$$

and triangle OND is the required triangle.

Proof.—From (2), $s.MJ = r.GO$,

$$s.MJ+\tfrac{1}{2}rs = r.GO+\tfrac{1}{2}rs, \quad s(MJ+\tfrac{1}{2}r) = r(GO+\tfrac{1}{2}s) = r.EG;$$

therefore, by (1), $s^2(MJ^2+\frac{1}{4}r^2+r.MJ) = r^2(\frac{5}{4}s^2+rs)$,

$$s.MJ(MJ+r) = r^2(s+r), \quad s(MJ+r) = r^2/MJ\,(s+r),$$

or, by (3), $s(MJ+r) = KJ\,(s+r)$,

$$s(MJ-JK) = r(KJ-s) \quad \text{or} \quad r(OK-s),$$

that is $OM : OD = MK : DK$;

therefore MN bisects $\angle OMK$, and $\angle OND = \angle NMJ$. But

$$\angle NOJ = 2\angle NMJ, \quad \text{and} \quad \angle JOC = \angle OMJ = 2.NMJ;$$

therefore whole $\angle NOC = 4.NMJ = 4.OND$.

Note.—Evidently if $s = \frac{1}{5}r$, H falls on line GO; if $s < \frac{1}{5}r$, H becomes imaginary.

16775. (M. V. Arunachalan, M.A.)—Prove that

$$\tfrac{1}{3}P_1-\tfrac{1}{5}P_3+\tfrac{1}{7}P_5-\ldots+(-1)^{n+1}[1/(2n+1)]\,P_{2n-1}\ldots = \tfrac{1}{384}\pi^3,$$

where $$P_{2r-1} = \frac{1}{2}R(1)+\frac{1}{4}R(3)+\frac{1}{6}R(5)+\ldots+\frac{1}{2r}R(2r-1)$$

and $$R(2p-1) = 1+\frac{1}{3}+\frac{1}{5}+\ldots+\frac{1}{2p-1}.$$

Solution by T. W. Chaundy *and* Pulinbihari Das, M.A.

Let $$S_x \equiv x-\tfrac{1}{3}x^3+\tfrac{1}{5}x^5-\tfrac{1}{7}x^7+\ldots;$$

therefore $$d/dx.S_x \equiv 1-x^2+x^4-x^6+\ldots,$$

and $$S_x.d/dx.S_x \equiv x-x^3(1+\tfrac{1}{3})+x^5(1+\tfrac{1}{3}+\tfrac{1}{5})-x^7(1+\tfrac{1}{3}+\tfrac{1}{5}+\tfrac{1}{7})+\ldots$$
$$\equiv R(1)x-R(3)x^3+R(5)x^5+R(7)x^7+\ldots.$$

Integrate $$\frac{(S_x)^2}{2} \equiv \frac{R(1)}{2}x^2-\frac{R(3)}{4}x^4+\frac{R(5)}{6}x^6-\frac{R(7)}{8}x^8+\ldots;$$

therefore

$$\frac{(S_x)^2}{2}\frac{d}{dx}S_x \equiv \frac{R(1)}{2}x^2-\left(\frac{R(1)}{2}+\frac{R(3)}{4}\right)x^4+\left(\frac{R(1)}{2}+\frac{R(3)}{4}+\frac{R(5)}{6}\right)x^6-\ldots$$
$$\equiv P(1)x^2-P(3)x^4+P(5)x^6-\ldots.$$

Integrate $$\frac{(S_x)^3}{6} \equiv \frac{P(1)}{3}x^3-\frac{P(3)}{5}x^5+\frac{P(5)}{7}x^7-\ldots;$$

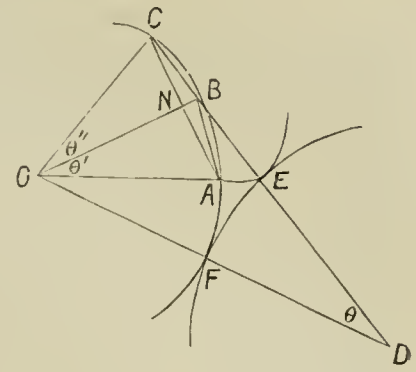
therefore $$\tfrac{1}{3}P(1)-\tfrac{1}{5}P(3)+\tfrac{1}{7}P(5)\ldots \equiv \tfrac{1}{6}(S_1)^3.$$

But $$S_1 = 1-\tfrac{1}{3}+\tfrac{1}{5}-\tfrac{1}{7}+\ldots = \tfrac{1}{4}\pi,$$

so that $$\tfrac{1}{3}P(1)-\tfrac{1}{5}P(3)+\tfrac{1}{7}P(5)-\ldots = \tfrac{1}{384}\pi^3.$$

16815. (C. E. Youngman, M.A.)—A circle rolling on an equal circle will touch the resulting cardioide at points whose distance from the cusp is in each case $\frac{1}{4}$ of the radius, and will cut it orthogonally at seven times as far; the four points being collinear.

Solution by M. T. Naraniengar, M.A.



(i) Let ABC be the fixed circle, centre O. Make

$$AOB = \cos^{-1}(\tfrac{7}{8}) = BOC;$$

then $$BN = \tfrac{1}{8}a;$$

therefore $$AB^2 = \tfrac{1}{8}a.2a = \tfrac{1}{4}a^2;$$

therefore $$AB = BC = \tfrac{1}{2}a.$$

Draw AE parallel to OB to meet CB produced at E;

because CN is bisected at N;

therefore CE is bisected at B; and

$$AE = 2BN = \tfrac{1}{4}a,$$

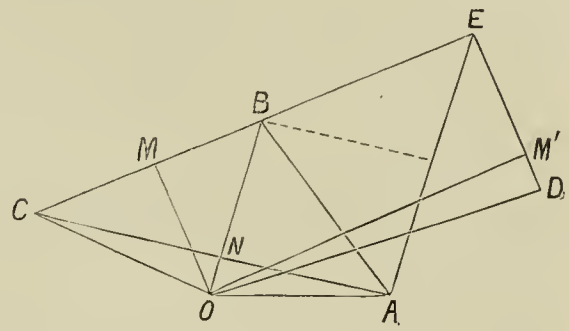
E being on the cardioide.

Again, produce CE to D, making $CD = 2a$. Then

$$CB.CD = a^2 = CO^2;$$

therefore COD is similar to CBO; therefore $OD = 2a$.

Hence, when the rolling circle has its centre at D, it passes through E. Since BED is normal to the cardioide, the circle touches the cardioide at E.



(ii) Next, make

$$AOB = \cos^{-1}(\tfrac{1}{8}) = BOC;$$

so that $BN = 7a/8$.

Draw AE parallel to OB to meet CB produced at E. Then triangles OAB, BAE are similar, and

$$AB^2 = OA.AE = a.7a/4.$$

Also $$OM^2 = a^2-BM^2$$
$$= a^2-\tfrac{1}{4}AB^2$$
$$= 9a^2/16;$$

therefore $OM = 3a/4$.

Now, if ED is perpendicular to CE and $= a$ be taken,

$$OD^2 = M'D^2+OM'^2 = ME^2+(a-3a/4)^2 = 63a^2/16+a^2/16 = (4a)^2.$$

Hence, $OD = 2a$, and the rolling circle, centre D, passes through the point E on the cardioide and touches BE; *i.e.*, it cuts the cardioide (whose normal is BE) at right angles.

11390. (W. J. Greenstreet, M.A.)—Find the area of a triangle in terms of the distances of its vertices from those of a given triangle.

Note by G. N. Bates.

If Δ is the area of the triangle of reference ABC, Δ' the area of PQR, then

$$16\Delta\Delta' = \begin{vmatrix} PA^2, & PB^2, & PC^2, & 1 \\ QA^2, & QB^2, & QC^2, & 1 \\ RA^2, & RB^2, & RC^2, & 1 \\ 1, & 1, & 1, & 0 \end{vmatrix}.$$

This result was given by M. E. Lucas in *Mathesis*, Vol. IX, p. 134. I have given a solution in the *Math. Gazette*, Vol. II, p. 186.

11571. (D. Biddle.)—Ten men form a tontine, agreeing to pay £1 each annually so long as life lasts, the survivor to have the whole at 3 per cent. compound interest. The nine die off at intervals of 1, 2, 3, or 4 years (variable, but all equally probable). Find the maximum, the minimum, and the mean sum realized.

Solution by C. W. Adams.

The amount derived from a contributor who dies after n payments is

$$a^N+a^{N-1}+\ldots+a^{N-n+1} = a(a^N-a^{N-n})/(a-1),$$

where $a = 1{\cdot}03$ and N is the number of years the tontine lasts.

So the amount realized, including the survivor's contributions and the interest thereon, is

$$a(10a^{n_1+n_2+\ldots+n_9}-a^{n_2+n_3+\ldots+n_9}-\ldots-a^{n_9}-2)/(a-1),$$

where $n_1, n_2, \ldots$, have any of the values 1, 2, 3, or 4.

(i) This is a maximum when $n_1 = n_2 = \ldots = 4$, and is then

$$a(10a^{10}-11a^6-a^4+2)/(a^4-1)(a-1) = £441 \text{ approx.}$$

(ii) It is a minimum when $n_1 = n_2 = \ldots = 1$, and is then

$$a(10a^{10}-11a^9-a+2)/(a-1)^2 = £65 \text{ approx.}$$

(iii) Its mean value will be $a\Sigma/4^9(a-1)$, where Σ is the sum of the 4^9 possible and equally probable values of

$$10a^{n_1+n_2+\ldots+n_9}-a^{n_2+\ldots+n_9}-\ldots-a^{n_9}-2;$$

therefore $$\Sigma = 10A^9-4A^8-4^2A^7-\ldots-4^8A-2.4^9,$$

where $$A = a+a^2+a^3+a^4;$$

therefore the mean value is

$$a(10B^{10}-11B^9-B+2)/(B-1)(a-1), \quad \text{where } 4B = A;$$

therefore the mean value is £213 approx.

A Group of Points.

By W. Gallatly, M.A.

Let A′, B′, C′ be the mid-points of the sides of ABC; H the orthocentre; I the in-centre; M the Gergonne Point with normal c's $1/a(s-a)$, &c.; N the Nagel Point with c's $(s-a)/a$, &c.

Let AH, BH, CH meet the opposite sides in D, E, F; AI, BI, CI in l, m, n; AM, BM, CM in X, Y, Z, the points of contact of the in-circle; AN, BN, CN in X_1, Y_1, Z_1, the inner points of contact of the ex-circles.

The Harmonic Polars of the four points are—

(1) For H, $\cos A.\alpha + \ldots = 0$, the radical axis of circles ABC, A′B′C′.

(2) For I, $\alpha+\beta+\gamma = 0$, the radical axis of circles ABC, $I_1I_2I_3$.

(3) $a(s-a).\alpha + \ldots = 0$.

(4) $a/(s-a).\alpha + \ldots = 0$.

These four lines are concurrent at a point—call it Γ—whose normal c's $(\alpha', \beta', \gamma')$ are given by

$$\alpha' \propto \cos B - \cos C \propto (b-c)(s-a),$$

and barycentric c's (x, y, z) by

$$x \propto a(b-c)(s-a).$$

Change the signs of α, β, γ successively in these four equations. It follows that EF, mn, YZ, Y_1Z_1 are concurrent at the point $(-\alpha', \beta', \gamma')$. Call this Γ_1. So FD, nl, ZX, Z_1X_1 are concurrent at $(\alpha', -\beta', \gamma')$ or Γ_2; and DE, lm, XY, X_1Y_1 at $(\alpha', \beta', -\gamma')$ or Γ_3.

2 If θ be the Feuerbach Point, it is easily proved, by changing to A′B′C′ coordinates, that A′θ passes through Γ_1; so B′θ passes through Γ_2; C′θ through Γ_3.

3. The power of Γ for the circle ABC.—Since Γ is the point of intersection of the radical axis of the circles ABC and A′B′C′ with the radical axis of the circles ABC and $I_1I_2I_3$, it follows that Γ has the same power Π for all three circles.

And Π = power for ABC $= (a^2yz + b^2zx + c^2xy)/(x+y+z)^2$,

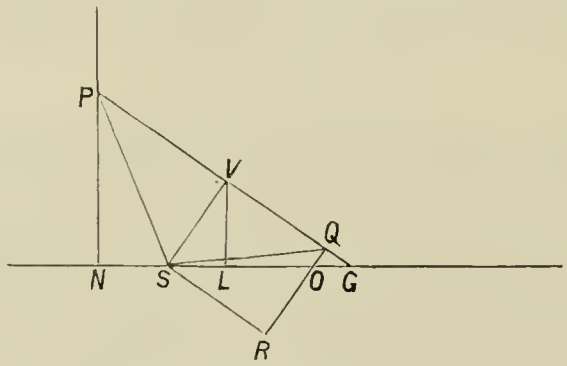
$= abc.\{[a(a-b+c)(a+b-c)(a-b)(a-c)+\ldots]/[a(b-c)(b+c-a)+\ldots]^2\}$

$= \frac{1}{4}.abc.\{[\Sigma.a^3(a-b)(a-c)]/[(b-c)^2(c-a)^2(a-b)^2]\}$.

16797. (C. E. Youngman, M.A.)—On PG, normal to a parabola, Q is such that SQ = ½PG; show that the locus of Q is a cardioide.

Additional Solution by V. Ramaswami Aiyar, M.A., *and* Prof. T. L. Csada.

Draw SV perpendicular to PG, and PN, VL perpendicular to the axis. Then SQ = VG. Describe the triangle SRQ equal in all respects to VLG; so that SR = VL, and RQ = LG = ½ of NG = a. Let RQ cut the axis in O.



Then $\angle RSQ = \angle LVG = \angle VSG$;

therefore $\angle RSO = \angle VSQ$;

therefore SR/SO = SV/SQ = SV/VG = VL/LG.

Hence, SR being equal to VL, we have SO = LG = a.

Consequently O is a fixed point, and the locus of R is the circle described on SO as diameter. And since, along OR, Q is such that RQ = a = SO, the locus of Q is a cardioide.

16830. (Professor Nanson.)—Find the condition that

$$a(y-z)^2 + b(z-x)^2 + c(x-y)^2$$

may be a perfect square. Also the condition that

$$a(y-z)^2 + \ldots + \ldots + f(x-w)^2 + \ldots + \ldots$$

may be the product of two factors linear in x, y, z, w, and generalise.

Part Solution by Lt.-Col. Allan Cunningham, R.E.

Write $x' = y-z, \quad y' = z-x$;

then $x-y = -(x'+y')$,

$$N_1 = a(y-z)^2 + b(z-x)^2 + c(x-y)^2 = ax'^2 + by'^2 + c(x'+y')^2$$
$$= (a+c)x'^2 + 2cx'y' + (b+c)y'^2.$$

The conditions that N_1 may be a perfect square are

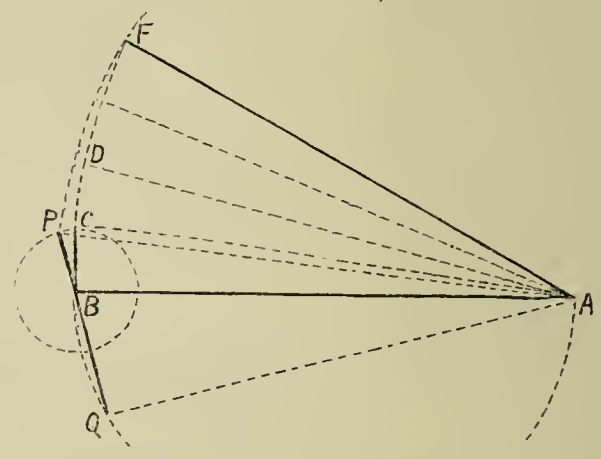
$$a+c = \alpha^2, \quad b+c = \beta^2, \quad c = (a+c)(b+c).$$

The second expression seems insufficiently defined. It is not clear whether it should include all the six differences between the four letters x, y, z, w.

16857. (D. Biddle.)—Let AB be the base of a semicircle, and, on the opposite side of AB and perpendicular to it, draw BC. Join AC, and, perpendicular to this, draw CD = BC. Repeat the process n times, and, with A as centre and the final join as radius, draw an arc cutting the circle, described with B as centre and BC as radius, in P. Join PB and produce, to meet the original semicircle in Q. Prove that, provided $(n-1)$ BC < 2AB, QB = ½ $(n-1)$ PB.

Solution by E. B. Bowesman.

$$AC^2 = AB^2 + BC^2, \quad AD^2 = AC^2 + BC^2 = AB^2 + 2BC^2,$$
$$AE^2 = AB^2 + 3BC^2, \quad \ldots.$$



If F be final join, $AF^2 = AB^2 + nBC^2$;

therefore $AP^2 = AB^2 + nBC^2 = AB^2 + nBP^2$.

But $AP^2 = AB^2 + BP^2 - 2AB.BP\cos PBA$;

therefore $BP^2 - 2AB.BP\cos PBA = nBP^2$

or $-2AB\cos PBA = (n-1)BP$;

that is, $2AB\cos QBA = (n-1)BP$ or $2BQ = (n-1)BP$.

$(n-1)$BC < 2AB, for otherwise cos PBA is numerically greater than 1. That is, geometrically, AP does not cut circle (B, BP).

16695. (F. G. W. Brown, B.Sc., L.C.P.)—If, in a triangle ABC,

$$2(3b^2-2ac)\cos A\cos C = (5b-4c)(4c-3b)\cos B,$$

prove that the sides a, b, c are in Arithmetical Progression.

Solutions (I) *by* B. C. Wallis, B.Sc. (Econ.), F.C.P.; (II) *by* Krishna Prasad De, M.A.

(I) $$(\cos A\cos C)/\cos B = \frac{(b^2+c^2-a^2)(a^2+b^2-c^2)}{2b^2(c^2+a^2-b^2)}.$$

Let $bk = a+c$, then L.H.S.

$$= \frac{b^2-k^2(c-a)^2}{2[b^2(k^2-1)-2ac]} = \frac{b^2-b^2k^4+4bck^3-4c^2k^2}{2[b^2(k^2-1)-2ac]}.$$

Equating this with $\dfrac{(5b-4c)(4c-3b)}{2(3b^2-2ac)}$

and cross multiplying, one gets the equation

$$(k^4-16)(2ab^2c-3b^4) + (k^3-8)(12b^3c-8abc^2)$$
$$+ (k^2-4)(8ac^3-32b^3c+4b^2c^2+15b^4) = 0,$$

whence $k = 2$. [Rest in *Reprint*.]

16833. (C. E. Youngman, M.A.)—If the feet P, Q, R of the normals from N to a cardioide be collinear with a fourth point M on the curve, and if Mpqr be a perpendicular chord, then the tangents at p, q, r will concur, at T, and NT will go through the centre of the cardioide.

Remarks by M. T. Naraniengar, M.A.

The conditions of the problem cannot be practically satisfied. For it is impossible to find *real* collinear points P, Q, R such that the normals at P, Q, R are concurrent To prove this, we have to remember that normals to a cardioide envelope another cardioide, so that concurrent normals of the former reduce to concurrent tangents of the latter.

Now, let $r = a(1+\cos\theta)$ be the cardioide. The normal to it at "t" $(= \tan\frac{1}{2}\theta)$ is easily written in the form

$$y(1-3t^2) + x(t^3-3t) + 2at = 0,$$

i.e., $$t^3 - 3t^2(y/x) + t[(2a-3x)/x] + y/x = 0 \quad \ldots\ldots\ldots\ldots (1).$$

Any straight line $lx+my+2a = 0$ cuts the cardioide in four points given by $l[2a(1-t^2)/(1+t^2)^2] + m[(4at/(1+t^2)^2] + 2a = 0$;

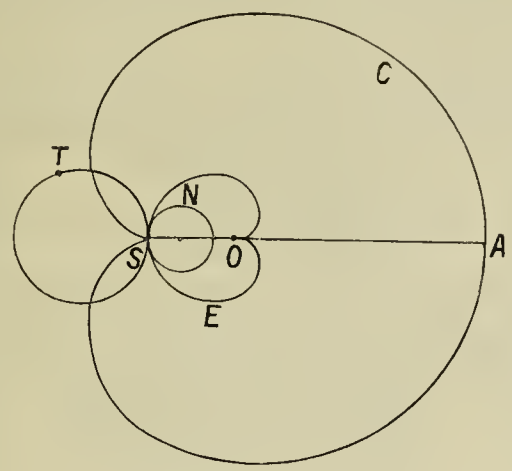
therefore $$t^4 + t^2(2-l) + 2mt + (1+l) = 0 \quad \ldots\ldots\ldots\ldots (2).$$

If the feet of normals through (x, y), given by (1), should be collinear, (1) must be a factor of (2). Hence M, the fourth point, is $t_4 = (-3y/x)$,

such that
$$\left.\begin{aligned} -9y^2/x^2+(2a-3x)/x &= 2-l \\ y/x+3y(2a-3x)/x^2 &= 2m \\ 3y^2/x^2 &= 1+l \end{aligned}\right\}.$$

In other words, the locus of (x, y) is the result of eliminating l between the first and last of these equations, viz.,
$$x^2+y^2-\tfrac{1}{3}ax = 0 \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3).$$

Thus, for the problem to be practical, the circle (3) must be partly (at least) *outside* the evolute of $r = a(1+\cos\theta)$, which is not the case. In the figure N represents the circle (3), whereas E is the evolute.



The problem is *true*, nevertheless, as may be seen thus: the tangent is
$$y(t^3-3t) -x(1-3t^2)+2at = 0,$$
and the condition that the points of contact of concurrent tangents may be collinear is as before deduced. Also, the fourth point is
$$t_4 (= 3x/y).$$
The locus of T is seen to be
$$x^2+y^2+ax = 0,$$
viz., the circle T in the figure. The centre O of the cardioide C is the centre of similitude of the circles T and N. Therefore, if N, T be corresponding points on the circles, $\angle$ TSN is a right angle, and t_4 is the same for the two chords. That is, the two chords cut the cardioide at the same point M.

Further, the gradient of MPQR is
$$-l/m = (t_4^2-3)/t_4(5+t_4^2)$$
on reduction; and that of Mpqr will be found to be $t_4(5+t_4^2)/(3-t_4^2)$, showing that the chords are at right angles.

[The Proposer believes that a geometrical proof would bring out the fact that the angles which SM makes with the two chords are equal to those which SN and ST make with the axis. It is true also that, if normals parallel to SN (or tangents parallel to ST) have feet P′, Q′, R′, N is the nine-point centre of P′Q′R′ (*Reprint*, Vol. XVI, p. 97, N.S.), and M, P′, Q′, R′ are concyclic.]

10531. (Professor Morley.)—Through a point on an ellipse two circles are drawn, one cutting the ellipse again at the corners of an equilateral triangle, the other at those of a maximum triangle; prove that the circles touch.

Solution by C. E. Youngman, M.A.

Let ABCD, at which $x = a, b, c, d$, be the four points common to the conic $xy = 1$ and the circle
$$x^2+2xy\cos\omega+y^2-2gx-2fy+k = 0.$$
Then a, b, c, d are the roots of
$$x^4-2gx^3+x^2(2\cos\omega+k)-2fx+1 = 0.$$
Therefore $abcd = 1$, $a+b+c+d = 2g$, $a^{-1}+b^{-1}+c^{-1}+d^{-1} = 2f$.
Also the equations for the centre of the circle are
$$x+y\cos\omega = g, \quad x\cos\omega+y = f.$$

Now the condition for ABC maximum is that the centre of the conic should be its centroid G; *i.e.*, $2g = d$, $2f = d^{-1}$; therefore at the circum-centre O,
$$2X+2Y\cos\omega = d, \quad 2X\cos\omega+2Y = d^{-1} \ldots\ldots\ldots\ldots \text{(i, ii)}.$$
And the condition for A′B′C′ equilateral is that its centroid coincides with its circum-centre O′; *i.e.*, $3X' = 2g-d$, $3Y' = 2f-d^{-1}$;
hence
$$X'-2Y'\cos\omega = -d, \quad 2X'\cos\omega-Y' = d^{-1} \ldots\ldots\ldots \text{(iii, iv)}.$$
Multiply (i) by 2, (ii) by $-2\cos\omega$, (iii) by -1, (iv) by $2\cos\omega$, and add; then
$$4X\sin^2\omega+X'(4\cos^2\omega-1) = 3d.$$

This proves that D lies on OO′, dividing it in the constant ratio
$$OD : DO' = (4\cos^2\omega-1) : 4\sin^2\omega = \sin 3\omega : 4\sin^3\omega;$$
therefore the circles (O), (O′) touch, and have radii R : R′ in this ratio; which is negative, signifying internal contact, for ellipses ($\cos\omega > 1$) and for hyperbolas from $\omega = 60°$ to $120°$.

The equation $x(x-2y\cos\omega+d)+y(2x\cos\omega-y-d^{-1}) = 0$,
i.e.,
$$x(x+d) = y(y+d^{-1})$$
represents a rectangular hyperbola through O′ and G, cutting $xy = 1$ where $(x+d)(x^3-d^{-1}) = 0$; that is, opposite to D, and at ABC maximum; so it must be the Kiepert hyperbola of ABC; and since D is the Steiner point, O′ lying on OD must be the centre of perspective of ABC and its first Brocard triangle.

Further, if θ be the Brocard angle of ABC, we have $\cot^2\theta = -3\cot^2\omega$ (see Question 10386, Vol. x, New Series); whence $R' = 4R\sin^2\theta$; and it appears that (O′) is the minor auxiliary circle of the Brocard ellipse of the triangle made by the tangents at ABC.

QUESTIONS FOR SOLUTION.

Question **16892.** (See *Educational Times*, June, 1910.) In the test solution, *read* "$r_3 = 30$."

16896. (Professor Nanson.)—Design a simple mechanism to trace the curve of sines or companion to the cycloid.

16897. (G. N. Watson, B.A.)—Show that
$$F(\tfrac{16}{3}, -\tfrac{16}{3}, \tfrac{1}{2}, \sin^2 2°24'22\tfrac{1}{2}'') = \tfrac{1}{2}\sqrt{3},$$
F denoting the hypergeometric function of Gauss. Also
$$F(\tfrac{1}{8}, -\tfrac{1}{8}, \tfrac{1}{2}, 56\sqrt{2}-80) = \sqrt[4]{\{4-2\sqrt{2}\}}\cos 11°15'.$$

16898. (Lt.-Col. Allan Cunningham, R.E.)—Let $N = (1\mp ky^{2r-2}+y^{4r})$. Find certain series of numbers (y) for which N is algebraically factorizable into two co-factors where $k = 1$ or 2.

16899. (Professor E. B. Escott.)—Show that
$$\frac{1}{1.2.3}+\frac{1}{4.5.6}+\frac{1}{7.8.9}+\ldots = \frac{\pi\sqrt{3}}{12}-\tfrac{1}{4}\log_e 3.$$

16900. (Professor Sanjána, M.A.)—If a, b, c are known rational quantities, show how to determine x so that the expression
$$x^4+ax^3+bx^2+cx+1$$
may be a perfect square.

Ex.—$a = \pm 8$, $b = 2$, $c = 8$.

16901. (R. C. Archibald, M.A., Ph.D.)—Show that the equation
$$(1/r+1/c)^{\frac{2}{3}}\cos^{\frac{2}{3}}\tfrac{1}{2}\theta+(1/r-1/c)^{\frac{2}{3}}\sin^{\frac{2}{3}}\tfrac{1}{2}\theta = (2/a)^{\frac{2}{3}}$$
defines (1) a cardioide and a line if $c = a$, (2) a nephroid (so-called two-cusped epicycloid) if $c = \infty$. The equation of a cissoide may be written
$$(1/r+1/c)\cos^{\frac{2}{3}}\tfrac{1}{2}\theta+(1/r-1/c)\sin^{\frac{2}{3}}\tfrac{1}{2}\theta = 0.$$

16902. (C. E. Youngman, M.A.)—A circle whose centre Z moves round a fixed circle (O) of half its radius will in two opposite positions (Z), (Z′) cut the resulting cardioide in eight points altogether, besides infinity; show that these eight lie on a parabola; that the parabola has double contact, along ZZ′, with the circle whose diameter is the axis of the cardioide, and also touches (on OT perpendicular to ZZ′) the double tangent of the cardioide; and its focus lies on the normal at the cusp.

16903. (C. M. Ross, B.A.)—Show that if a chord of the parabola $y^2 = 4ax$ touches the parabola $y^2 = 4bx$, then the locus of the intersection of the normals at its extremities is the cubic
$$(4a-b)^3y^2 = 4b^2(x-2a)^3.$$

16904. (M. T. Naraniengar, M.A.)—In the hyperbola
$$x^2/a^2-y^2/b^2 = 1,$$
the normal at any point P $(a\sec\theta, b\tan\theta)$ cuts the axes at G and g. If gG be produced to O, such that GO = gG, show that the feet of the remaining three normals through O are $\theta/3$, $(\theta+2\pi)/3$, $(\theta+4\pi)/3$.

16905. (R. F. Davis, M.A.)—If FX, FY are equally inclined to a fixed direction, and FX.FY = constant, determine the locus of X when the middle point of XY describes a straight line. [This is the locus of the focus of a conic inscribed in a given quadrilateral; see Question 16669 by Mr. C. E. M'Vicker.]

16906. (Professor Neuberg.)—Soient C le centre et p une asymptote d'une hyperbole équilatère passant par deux points fixes A, B. Lorsque C parcourt une droite donnée c, trouver l'enveloppe de p; lorsque p tourne autour d'un point donné P, trouver le lieu de C.

16907. (T. W. Chaundy, B.A.)—Given any system of $2n$ straight lines (all of whose intersections are finite points), there can be associated with them a system of n points $S_1, S_2, \ldots S_n$, such that, if parallels be drawn to the $2n$ lines through their poles for a circle with centre S_1, a similar operation be performed on the resulting system with respect to S_2, and so on, we reach, after the n-th performance of the operation, a system of $2n$ concurrent straight lines.

16908. (W. F. Beard, M.A.)—The line of centres of two circles cuts them at AB, CD respectively. Any circle through A, D cuts the two circles again at E, F. AE, DF meet at G. Show that the circle round EGF cuts the first two circles orthogonally, and that its diameter through G is the radical axis of the two circles; also EB, FC pass through the other end of this diameter.

16909. (I. Arnold.)—Given the sum of the three sides, the perpendicular to, and the difference of the angles at the base, to construct the triangle.

16910. (Professor E. Hernández.)—Si a', b', c', sont les côtés du triangle dont les sommets sont les pieds des hauteurs du triangle ABC, on a
$$a'/a^2+b'/b^2+c'/c^2 = \tfrac{1}{2}(a/bc+b/ca+c/ab).$$

16911. (Professor Nanson.)—Show that in any two homographic pencils there are always two pairs of corresponding rays OI, O′I′; OJ, O′J′, such that IOJ, I′O′J′ are right angles, and if θ, θ' are the angles made with OI, O′I′ (or OJ, O′J′) by any two corresponding rays OP,

O′P′, then $\tan\theta/\tan\theta'$ is constant. Obtain also a geometrical construction for the corresponding pairs of perpendicular rays when three pairs of corresponding rays are given, and deduce therefrom the known construction for perpendicular conjugate rays in an involution pencil.

16912. (D. Biddle.)—Prove that one of the roots of the cubic equation, $x^3-3x-\sqrt{3}=0$, equals twice the cosine of 10°.

16913. (W. Gallatly, M.A.)—If AI, BI, CI meet the opposite sides in XYZ, prove that the normal co-ordinates of H′, the orthocentre of XYZ, are as $(1+2\cos A)(1+\cos B+\cos C)$, and hence that H′ lies on OK.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

11892. (Professor Minchin, M.A.)—In the general motion of a liquid (or strain of a solid), if at any point of a stream-line the vertical spin of the molecule takes place round a line perpendicular to the osculating plane, and is the same in magnitude and sense as the time rate of rotation of the tangent to the curve, this tangent is one of the principal directions of the strain at the point.

12182. (Professor Sylvester.)—As on a cubic boundary in space of three dimensions a definite number (27) of right lines can be drawn, so (1) show that on a cubic boundary in space of eight dimensions a definite number of hyper-planes can be drawn, and (2) determine their number.

12191. (Professor Steggall, M.A.)—Prove that a *finite* wave of any form can be propagated unchanged along a uniform inextensible string under a constant tension T, if it be initially displaced over a finite length in the form $y=f(x)$, and receive at each point a velocity whose components are $a(1-dx/ds)$ along the string, $-a\,dy/ds$ at right angles to the string, where $a^2=T/m$, and m is the mass per unit length. What will happen if the initial velocities are $a'(1-dx/ds)$, $-a'\,dy/ds$?

12439. (Professor Haughton, F.R.S.)—A refracting surface is formed by a prolate spheroid of revolution, and the luminous point is placed on the axis; find the relation between the eccentricity and the refractive index, so that there shall be no spherical aberration.

12505. (Professor Myers.)—Of all the melons in a patch, $\frac{1}{3}$ are not ripe, $\frac{1}{4}$ are rotten, and the rest are good. If a man enters the patch on a dark night, and takes a melon at random, find the probability that he will get a good one.

12606. (Professor Hudson, M.A.)—Find how many figures of the recurring decimal ·444 ... must be written down (1) that the number they express may be within a billionth of $\frac{4}{9}$; and (2) if eight figures be written down, by how much per cent. the number they express is less than $\frac{4}{9}$.

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Sir W. D. Niven, President, in the chair.

The following papers were communicated:—

"The Composition of Finite Screw Displacements": Mr. G. T. Bennett.

"On Differential Equations with Fixed Branch Points": Prof. M. J. M. Hill.

"On Geiser's Method of Generating a Plane Quartic Curve": Miss M. Long.

"The Generation of Cubic Curves by Apolar Pencils of Lines": Mr. W. P. Milne.

"The Constitutive Equations of Material Media in Electrodynamics": Mr. E. Cunningham.

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City and Guilds of London Institute,
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PRIFYSGOL CYMRU. UNIVERSITY OF WALES.

THE TWENTIETH MATRICULATION EXAMINATION will commence on Monday, September 5th, 1910. Particulars from the REGISTRAR, University Registry, Cathays Park, Cardiff, from whom forms of entry can be obtained. Application for entry forms must be made not later than MONDAY, August 8th, 1910.

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UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.

Provost: T. GREGORY FOSTER, Ph.D.

THE Session 1910–11 in the FACULTIES OF ARTS, LAWS, MEDICAL SCIENCES, SCIENCE AND ENGINEERING will begin on Monday, October 3rd. The Provost and Deans will attend on Monday, October 3rd and Tuesday, October 4th, from 10 a.m. to 1 p.m., for the admission of students. Intending students are invited to communicate with the Provost as soon as possible.

THE SLADE SCHOOL OF FINE ART will open on Monday, October 3rd, and students may be admitted on or before that date.

FACULTY OF MEDICAL SCIENCES.

EXAMINATION for Entrance Scholarships on Tuesday, September 20th, 1910.

The following Prospectuses are now ready, and may be had on application to the Secretary:—

Faculty of Arts,
Faculty of Laws.
Faculty of Medical Sciences.
Faculty of Science.
Faculty of Engineering.
Indian School.
Slade School of Fine Art.
School of Architecture.
Department of Economics.
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WALTER W. SETON, M.A.,
Secretary.

University College, Gower Street, London.

NEW SESSION COMMENCES SEPTEMBER 26.

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For particulars of admission, scholarships, bursaries, and loan fund apply—The PRINCIPAL, Training College, Cambridge.

UNIVERSITY OF BRISTOL.

The Session will commenco on Monday, October 3rd. Prospectuses and full particulars of any of the following will be forwarded on application :—

FACULTY OF ARTS.
FACULTY OF SCIENCE.
FACULTY OF MEDICINE—
MEDICINE AND SURGERY.
DENTAL SURGERY.
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UNIVERSITY OF EDINBURGH.

WINTER SESSION begins about the beginning of October and closes about the middle of March; the SUMMER SESSION extends from about the beginning of May to July.

For particulars of the Faculties see Advertisement on back page.

UNIVERSITÉ DE RENNES (France).
FRENCH COURSE for FOREIGNERS
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Reduction of 50 % on railway fares from Dieppe or Calais to Rennes. Apply for Prospectus to
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Candidates must have passed the Matriculation Examination or an equivalent. Holders of Scholarships will be required to enter into residence in October, 1910, and to read for a Degree in Arts or Science to be approved by the Council.

For Calendar and further particulars as to Scholarships, apply to the Secretary, Miss S. M. SMEE, Westfield College, Finchley Road, N.W.

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(*Affiliated to University Correspondence College.*)

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Day Classes may be taken up at any time during August. A systematic Revision Class, meeting both morning and afternoon, commences Monday, August 22nd.

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Enlargement of the Hospital and College.

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The ENTRANCE SCHOLARSHIP in Dental Mechanics of £25. Open only to Pupils of Private Practitioners.
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Lectures and Classes will be resumed on October 3rd.

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(UNIVERSITY OF LONDON.)

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Prof. S. A. F. WHITE, M.A.	Mathematics.
Prof. J. M. THOMSON, F.R.S.	Chemistry.
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ENGINEERING DAY COURSES IN MECHANICAL, ELECTRICAL, and HOROLOGICAL ENGINEERING, and in ELECTRO-CHEMISTRY.

Full Day Courses in the Theory and Practice of the above will commence on Monday, 3rd October, 1910. ENTRANCE EXAMINATIONS on Wednesday and Thursday, 28th and 29th September, at which FIVE ENTRANCE SCHOLARSHIPS will be offered. The Courses for Mechanical and Electrical Engineering include periods spent in commercial workshops and extend over four years, and they also prepare for the Degree of B.Sc. in Engineering at the University of London. Fees for either of these Courses, £15 and £11 per annum.

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On the Pure Oral System.

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CONTENTS.

	Page
Leader: The Education Estimates, 1910–11	295
Notes — Speech Day Commonplaces—Influence of Teachers on Pupils—The Pessimistic Note—A Man for a Tight Place—Character and Moral Courage—A Greek Chair for Birmingham—An Academic Committee to guard and cherish Pure Literature—Cookery at Cardiff.	296
Mr. Henry Weston Eve	298
Summary of the Month	298
Universities and Colleges — London—Edinburgh—National University of Ireland.	301
The College of Preceptors:	
Half-yearly General Meeting	303
Adjourned Meeting of the Council	305
London Training College Students: Manifesto of Grievances	305
The British Association at Sheffield: Programme of the Education Section	305
Current Events — Fixtures—Honours—Endowments and Benefactions—Scholarships—Appointments and Vacancies—Literary—General.	307
The Educational Ladder	310
The Educational Value of Humour. By Stephen S. Colvin, University of Illinois. (From the *Pedagogical Seminary*)	312
The Schoolmaster as Hero	312
Assistant Masters' Salaries: German and English	315
Reviews — The Greatness and Decline of Rome, Vols. III, IV, and V (Ferrero)—Crete the Forerunner of Greece (Hawes)—Theories of Parallelism (Frankland).	315
General Notices	317
First Glances	319
Mathematics	320

The Educational Times.

Education Estimates, 1910–11.

THE speech of the President of the Board of Education in moving the estimates for his Department covers a wide area, and we can deal only with those parts of it which affect directly the College of Preceptors and its members. Yet at the present day the whole of national education, from the elementary school to the University, is so correlated and dovetailed—"every way bound by gold chains about the feet" of Whitehall—that it is not possible to exclude all reference to other than secondary teaching. There are some who regard this extension of the Board's province as an unmixed benefit, and only wish it more strength to its arm. One member in the debate went so far as to advocate an immediate addition of three millions to the vote to enable the Board to carry out its policy and fulfil its promises of unlimited free education, coupled with relief to the rate-payer. Others view the growth of State subsidization and concomitant bureaucratic control with unmixed alarm and apprehension, and foresee a weakening of parental responsibility and an extinction of all private enterprise and original experiment. These terrors appear to us excessive, and, as far as the present action of the Board has gone, they are based on a very slight foundation. At the same time, it behoves teachers more than ever to be vigilant, and there is no denying that, in spite of the President's fair words, his Board has shown a marked disinclination to recognize teaching as a profession and a contemptuous disregard of representations made to it by large and influential organizations of teachers.

There is much to criticize in Mr. Runciman's speech, but we may quote at starting one pronouncement that will give unmixed satisfaction to the whole profession:—

> I should like to refer to the position of the head masters in secondary schools. If there is one thing in the organization of education of localities which seems a serious danger, it is the over-control of officials. In secondary schools this is particularly harmful. The head master ought to be properly consulted in the management of his school, and he should have immediate access to the governing body of that school. The appointment of assistants ought never to take place without consultation with him. On that subject the governing body ought only to act after full consultation with the head master. He ought to be the responsible executive officer, through whom, and after consultation with whom, the responsible authority acts. I do not for a moment believe that this undermines popular control. I believe it is very much better than bureaucratic control. The governing bodies themselves ought to have control of the secondary schools, and I do invite them to get into closer touch with the head masters. In urging this I am really fighting the battle of the teaching profession. If this right of direct access to the governing bodies is not granted—and, indeed, if it is not demanded by the Local Authorities themselves—it will mean that men of character and education and wide experience will be driven away from secondary schools. That would be most lamentable, and not to the best advantage of this great service.

Mr. Runciman reported, with justifiable pride, that there are now 950 secondary schools, with over 158,000 pupils, in receipt of grants to the amount of half a million—a rise of 100 schools in the course of the last two years—and that of these pupils nearly a third are free-place scholars from the elementary schools. No answer, however, was made to Sir William Anson's just complaint that the free-placer is irremovable except for bad conduct, that a school may be saddled with scholars who have shown that they are unable to profit by the teaching. Later in the debate the Parliamentary Secretary made, on the whole, a satisfactory defence of the statutory 25 per cent. It is not a hard-and-fast rule—in over a hundred cases it is modified, and in some as low a proportion as 10 per cent. satisfies the Department. These scholars will, undoubtedly, raise the intellectual level of the school, and the fear that they will lower the social tone is a vulgar prejudice.

A far more serious objection was raised by Sir Philip Magnus as to the curriculum of secondary schools and the kind of instruction that these elementary scholars are receiving. What, he asked, will become of these fifty thousand scholars when they leave school at the age of sixteen? Will they not go to swell the vast army of *déclassés*—penny-a-liners, office clerks, competitors for minor posts in Government offices? And he pointed, by way of contrast, to the treatment of the corresponding class of pupils, the pick of the primary schools, in France. There the very few who show signs of real literary ability are drafted into the *lycées*; but for the majority a thoroughly practical curriculum is provided such as enables the pupils on leaving

school to find immediate employment in commercial houses, manufacturing works, and so forth. Which course is better for the interests of these pupils—practical science, mechanical drawing, and thorough English, or small Latin and less Greek? *Carrière ouverte aux talents* is our motto no less than that of the French Ministry of Public Instruction, and we, no less than Frenchmen, desire democratic schools without class distinction; but that is no reason why we should send all the most promising children of the working classes to schools planned for the middle and upper classes on a classical basis with a leaving age of eighteen. Why are none of these elementary scholars sent to the higher elementary schools, or why are no schools founded like the French technical schools or the German *Realschulen?* Why has the Board disregarded the grave indictment of the Poor Law Commission, in which both the majority and the minority agree, that there is too much of literature in our schools and too little of science and the practical arts? Why, again, has the remonstrance of the modern language teachers against the Board's one-sided and inaccurate memorandum on language teaching never been answered? Why is a school that teaches French and German without Latin still refused recognition except by special privilege?

As to the Teachers' Register, Mr. Runciman maintained the *non possumus* attitude of the Board. Until teachers were agreed among themselves, he could and would do nothing. He understood that something like an agreement had been reached at the Clothworkers' Hall Conference; but one organization of teachers had, after the Conference, demurred on the ground that they were under-represented on the Council, and their demurrer knocked the bottom out of that scheme. However, he was prepared to make a new offer. If the teachers would send him a list of the names of those they desired to see as their representatives on the Council, and if he should ascertain that "it is really a complete agreement of all portions of the teaching profession," he was prepared, on his part, to recommend the issue of an Order in Council. Colonel Lockwood professed himself satisfied with this offer; but to most teachers it will seem a hollow mockery. Having failed to produce a scheme of representation sufficiently unanimous to satisfy the President, teachers are now invited to pass by a unanimous vote an actual list of representatives. We must once more remind the President that it is on him, and not on teachers, that the Act of 1907 laid the duty of constituting a Registration Council. As Sir William Anson mildly hinted, if the Board had really set itself to work, we should by now have had a Register of Teachers.

One final criticism. Neither in the opening speech nor in the subsequent debate (by reason, no doubt, of the closure) were private schools once mentioned. How many private schools have been recognized, and how many refused recognition? How many scholars have been assigned to private schools? What grants or aids in other forms have been made, either by the Board or County Councils, to private schools? However widely the Board of Education extends its net, it must, at least for this generation, recognize private schools as an integral factor in national education, and such questions as we have raised imperatively demand an answer.

NOTES.

Speech Day has let out the usual gush of amusing and amazing commonplaces. In the more rarefied regions of secondary-school life there is the inevitable enumeration of the public men that have been educated by this or that celebrated institution. Even in the indulgent holiday mood it must require a considerable endowment of courage, or of forgetfulness, to suggest a serious claim of any school to share, beyond the most limited extent, in the subsequent public distinctions of statesmen, generals, millionaires, and other prominent personages. The influences of wealth and family reduce the share of the school to very modest dimensions. Besides, as Sir J. J. Thomson hinted at Mill Hill, "heredity is very much to the front nowadays, and the importance of the parents to the boy is being more and more realized. Nine-tenths of the business is accomplished when the boy is born, and very little is left for the master to do." Even on the theory of environment it behoves one to be sober in one's claims. To be sure, there have been and there are teachers that forcibly impress on some of their pupils some governing idea that works itself out conspicuously in the business of after-life. Yet there seems to be a tendency to diminish the number of such masterful teachers; for, as Mr. Fred Charles, the Chairman of the Assistant Masters' Association, has been pointing out, on the basis of an array of statistics, "our English conditions are such as to keep out of the schools many of the men best qualified, socially, intellectually, and morally, to train the youth of the country to maintain its reputation and position." For the mass of pupils, however, it may be fairly questioned whether an elementary teacher in the slums of a big industrial town has not more scope for shaping the life of his pupils than a teacher in the most famous of our public schools. And if he can seldom claim a Cabinet Minister or a victorious general as his handiwork, that is no evidence against him any more than a successful claim is evidence for the public school. It is all a matter of social differentiations: the school turns out, as best it may, just the pupils that it takes in.

The pessimistic note makes itself heard in many quarters. Lord Rosebery, who is an adept in indecision, longs for men of decision. He laments that there should be so many "fine young fellows asking helplessly what they are to do." Who, and where, are these fine helpless fellows? He has been studying English history, and finds that it was some three centuries ago that England "reared its greatest race." Like the schools, his history does not seem to come down to the present day, or else it is very inadequately depicted. The Archbishop of York, apparently impressed by Mr. Roosevelt, tells Rossall that what is needed more than anything else at the present day is a breed of strenuous men. "At the very moment when we are most in need of such," he says, "there seems to be setting in a spirit of softness, slackness, self-indulgence, and easiness; the tender solicitude of a mother for her darling seems to be invading public schools." Was there ever a time—will there ever be a time—when mothers

will not be tenderly solicitous for their darlings, whether at public schools or elsewhere? But the question is general, and the Archbishop may be fairly challenged to name any country or any age where there was more strenuousness in every department of exertion than there is now in this foolishly vilipended old England. In like manner, Sir J. J. Thomson tells us that "tenacity, common sense, and power of work are not so common as they were." But here we suspect that Sir Joseph is misled by his personal standard and by the professorial point of view; as a general proposition such a statement can be regarded only as a claustral echo of the wretched depreciation of everything English that is so common and so unfounded. We have not the smallest doubt that the guiding element of the nation is as strong and level-headed and strenuous as at any period in its history, or that the rising generation will fully maintain the credit of their ancestors. Fortunately, the teachers have not yet fallen victims to a groundless and paralysing pessimism.

Sir J. J. Thomson told the Millhillians a story that has been described as charming, and that we reproduce as extremely instructive. It arose out of his experience as an examiner for the army.

> There were three hours for each student, in which time they could perform their experiments. It was quite evident from his handling that the first knew nothing about it. He took off his coat and joined up all the wires in every possible way. At the end of an hour he asked for another experiment. For the performance of this he took off his waistcoat, with no greater success. A third experiment was attacked with equal enthusiasm and an equal lack of knowledge. The professor's report to the War Office was that the candidate knew no physics, but would be an uncommonly good man to be with in a tight place.

It may be asked how it came about that such a candidate, presumably after some period of preparation, "knew no physics." But what we want to emphasize is the chance of exclusion of "an uncommonly good man to be with in a tight place," where physics might be of little or no avail. Here, one would think, is just the kind of man that is needed in the army, physics or no physics. Surely there ought to be some way of securing such a recruit, and then, if he must have physics, of getting him primed with physics—a perfectly simple matter to anybody that knows physics and knows how to teach. Of course, he should bring his physics with him from school; but a school misfortune that could so easily be repaired need not be perpetuated for both candidate and country. At Winchester, Lord Selborne sounded the usual praises of character and moral courage. He struck a fresher note when he said: "There is a permanent danger at all public schools of some boys with very valuable qualifications passing comparatively unnoticed by both dons and men, and even sometimes earning disapproval, because of what are considered to be their eccentricities." "Independence of character and defiance of public opinion," when they "come from the reasonable use of the intelligence," are (he said) in themselves good things. "You never get a leader of men worth having who did not as a boy defy public opinion; and it was because he learnt to defy public opinion wisely and at the right time that afterwards he was not a follower but a leader of men." This is very true, but rather perilous, doctrine. It is a tight place where you want an uncommonly penetrating and sensible master.

Like all other Universities, even the University of Birmingham is brought to a stand for lack of pence. The Principal says that "in the present state of the finances new developments appear to be quite impossible—certainly any that involve expensive appliances." However, if you can't buy the pretty things in the window, you can speculate on which you would buy if you had the means. Sir Oliver Lodge would like to establish a school of Law and a department of Architecture; but, beyond even these most desirable acquisitions, his heart is set upon a chair of Greek. The champions of Greek may well take heart of grace when the scientific Principal of an ultra-modern University in a workaday town confesses himself languishing for the humanities of a Greek chair. Well, of course, he ought to have a Greek chair, and we shall be glad to hear that some millionaire in hardware or in anything still less poetical has sent him a handsome endowment. Sir Oliver has been long enough in Birmingham to discover that the be-all of life is not machinery, and that there is something to be said for literature. Still, let us be fair even to machinery. Is it quite right to say that "the human race does not exist to make machinery or any other subsidiary goods"? Where would the mass of the Birmingham portion of the human race be but for the making of machinery and other goods? Let us have that chair of Greek for such as can profit by it, and leave the relations of the human race to machinery for another occasion. We want machinery, and we want Greek: there is no necessary conflict between the two, and Birmingham University, with all its machinery, will remain seriously imperfect till Sir Oliver has got his Greek chair.

It is very gratifying to observe signs of increasing interest in the literature of our own language. We don't hear much of the proceedings of the British Academy; but we should imagine that it takes some concern for English language and literature. The English Association makes miscellaneous excursions into the subject. The Royal Society of Literature and the Society of Authors have just taken a first step in combination. Last autumn these two Societies appointed a Joint Committee to consider the best mode of creating a permanent body that should represent the interests of pure literature regardless of commercial considerations — a task for which authors are popularly supposed to possess special qualifications. The Committee has reported, and on its report there has been constituted within the Royal Society of Literature an Academic Committee, which is to consist of forty members, twenty-seven of whom are appointed original members and two have since been added. The names are respectable, but there is difficulty in connecting some of them with "pure literature," and not a few of them are already members of one or more of the aforementioned associations. And what is "pure literature"? And what are its "interests?" The object is laudable, of course; but our hopes of the practical

utility of the new Committee are sobered by an insistent doubt as to the percentage of it that have given public evidence of serious and comprehensive study of the genius of the subject as distinguished from particular effects and idiosyncrasies. The limit number, we dare say, is an imitation of the French Academy. It can be justified, in these days of vastly wider literary activity, only on the ground of the most stringent and instructed selection of the really meritorious. Even the British Academy has opened its exclusive doors to a round hundred. Has the Committee a plan of campaign? or is it to proceed on the rather futile principle of reading and listening to chance papers by the more pushful of its members? We wish it well, but we have our doubts.

With every respect for the noble feelings of independence of the cook, the mistress may not abnegate her dominant right to inspect the kitchen. It appears that for some time past a cookery school has been conducted by the Cardiff University College, but that the College Council intend to abandon the enterprise at the end of the year. The *South Wales Daily News* (July 9) reports the reason: "on account of an annual deficit of about £600." One would like to know details. How many years has this annual deficit been going on? And why should such an enormous deficit have been allowed to occur at all? We seem to remember quite recent exclamations from Cardiff, declaring multiplied need of more money. If the money in possession goes in other branches as in cookery, the need of the College is very intelligible, although hardly likely to encourage a flood of contributions. If the culinary operations go on for thirty weeks in the session, the loss figures out at £20 a week; if for forty weeks, it is still £15. How did this loss come about? Was there no mistress to look into the kitchen, or was she barred out? Cookery—so far—is all very well, but cookery at "an annual deficit of about £600" would be sinful waste were the mistress a millionaire. The Glamorganshire County Council and the Cardiff City Council are conferring on the future of this expensive school: shall they take it over or no? We are not concerned for its future, but we cannot repress a lament that such a wretched fiasco should stand to the account of a University College that needs to appeal to the benevolence of friends of education.

If the distinguished *alumni* of Bâle were limited to four (says the *Globe*) the fame of her University would never die, the Bernoulli dynasty of mathematicians alone being sufficient to keep her renown evergreen. There were four Bernoullis. The first, Jacques Bernoulli (1654–1705), was Professor of Mathematics. One of his achievements was the improvement of the differential calculus invented by Leibniz and Newton. The second was his brother Jean (1667–1748), mathematician and physicist. The third, Jean's son, also Jean by name (1710–1790), was jurist, Professor of Mathematics, also of Rhetoric. The fourth, Daniel, also son of the first Jean (1700–1782), taught anatomy, botany, and physics, and wrote upon hydrodynamics. His grand-nephew, Christopher, was a noted technologist and Professor of Natural History in his Alma Mater. Vinet, the theologian and literary critic, taught at Bâle. Nietzsche, the philosopher, taught classics in the University. Jacob Burckhardt, of "Renaissance" fame, was another of Bâle's famous sons, who, after teaching at his old school, removed to Zürich, returned to his University again to teach, and died there.

MR. HENRY WESTON EVE.

As we go to press we learn, with the deepest regret, that Mr. H. Weston Eve died at his residence in London on July 26. He was Dean of the College of Preceptors for more than twenty-six years. We hope to give a full memoir in our next issue.

SUMMARY OF THE MONTH.

Replying to a question on the subject of the Teachers' Register (July 5), by Colonel Lockwood, Mr. Runciman said:—

At the Conference in November the resolutions passed were subject to reservations in the case of several of the bodies represented there. These reservations were embodied in various memoranda which were submitted to the Board, and have been under consideration. Since then the Association of Teachers in Technical Institutions, who were members of the Conference, have held their annual conference, and on June 18 passed the following resolution: "That this Association is of opinion that, owing to the complexity of technical education and the diverse qualifications of those engaged in it, the representation accorded to technical teachers on the proposed Registration Council by the scheme submitted to the Board of Education is totally inadequate." Meanwhile, I have under consideration means by which the registration fees paid to late Council may be returned to those who claim them, and make good their claim on lines which I hope soon to settle.

In the House of Commons, Sir P. Magnus asked the President of the Board of Education for information about secondary schools in which the grant had been augmented in accordance with the provision of Regulation 39, with a view to meet the expense incurred in respect of special educational experiments.

Mr. Runciman: Augmented grant has been paid under this Article to the Perse School, Cambridge, annually since the year 1907–8 in respect of special expense incurred in connexion with the new oral method of teaching the classics. The results, which are both interesting and valuable, will shortly be available in a report on the working of the system to be published by the Board. Augmented grant has also been paid, or is payable, under the Article to schools receiving French or German assistants under the conventions concluded with the French and Prussian Governments. These grants were given in the year 1908–9 to two schools, and in the year 1909–10 to twenty-two. The satisfactory result of this experiment is partly shown by the fact that sixteen of the twenty-two schools have applied for continuance of the arrangement for the year 1910–11, and a good many new applications have been received. It is to be borne in mind, when estimating the advantages of this scheme, that it is one side of an international arrangement under which English teachers also obtain experience in French and German schools. I may add that applications for this augmented grant are being considered in respect of experiments with specialized commercial, engineering, and rural courses, with a new method of teaching music, with botany gardens, and with a scheme of school journeys and practical work in connexion with geography and history.

The President of the Board of Trade received an influential deputation in regard to the question of labour exchanges and juvenile employment (July 7). The deputation was introduced by Lord Henry Cavendish Bentinck, M.P., and included Mr. M. Jackman and Mr. W. A. Nicholls (National Union of Teachers), Mr. E. S. Mortimer (National Association of Head Teachers), Mr. A. J. Mundella, Mr. H. S. Cornish (National Education Association), Miss Constance Smith (National Committee on Wage-earning Children), Mrs. J. Ramsay MacDonald (National Union of Women Workers), Mr. Robert Applegarth (National Industrial Education League), and Mr. T. L. Roberts (Half-time Council). Lord Henry stated that their object was to urge that the Education Authorities should have on the Advisory Committees of the Labour Exchanges a paramount interest in the guidance and supervision of children leaving school for the labour market. This view was subsequently developed by the members of the deputation, who also emphasized the distinction which ought to be drawn between adult and juvenile labour, and

laid stress on the necessity for the maintenance of educational influences after the child had left school.

In reply, Mr. Sydney Buxton expressed his entire agreement with the principles the deputation had been advocating. It was, and had always been, the intention of the Board to differentiate between the methods of dealing with adult and juvenile applicants for employment. In the latter case the mere bringing together of the employer and the boy or girl was not sufficient. The child needed special help and advice in the choice of employment, and frequently required some supervision during the first years of his or her industrial life. It was their desire, too, that educational influences should be continued throughout this early period of the child's industrial career. At that age a boy or girl must be regarded not as a mere commercial unit, but as a future citizen. On this matter, as Mr. Runciman had pointed out, the Board of Trade and the Board of Education were cordially working in co-operation. The Board of Trade were actively engaged in the formation of Advisory Committees for juvenile employment, and there had been no avoidable delay. In regard to the constitution of these committees, it had been the consistent policy of the Board to secure that educational interests should predominate on them. In every case the committees were being formed after consultation with the Local Education Authorities, who were asked to nominate members to serve on them.

Mr. Oscar Browning, speaking at Toynbee Hall on the occasion of a presentation to him in commemoration of his Principalship of the Cambridge Day Training College, said that the Day Training College movement really originated with the Board of Education. Mr. Sharpe, Sir J. Fitch, and Sir E. Oakley—men of a type from whom their successors at Whitehall might well draw the inspiration of their policy—wishing to broaden the outlook of the elementary teacher, decided to found training colleges in connexion with the Universities. They approached Oxford and Cambridge, and at Cambridge the Teachers' Training Syndicate, of which he had been secretary for thirty years from its inception, took the matter up. Prof. Sidgwick and Dr. Ward were, with himself, the prime movers, and as a result of their audacity the first students arrived at Cambridge in 1891. Oxford began a year later. Prof. Sidgwick had said that he would not be a party to the movement unless he (Mr. Browning) undertook the Principalship, and consequently he regarded the holding of this office as a sacred trust. It was only when the Vice-Chancellor told him that unless he retired he would probably not be reappointed that he resigned the post. The actual opening was a trifle dramatic. He met Henry Sidgwick in St. James's Street and said to him, "Dare you open it?" Sidgwick replied, "I dare if you dare," and so the college came into being. For the first year's work Mr. Browning said that he received £10, and Mr. Iliffe (Master of Method, 1890–99, now Principal of the Central Secondary School, Sheffield) £15, from the Board of Education. The experiment had justified itself abundantly. The men who had passed through the college—men who, without the opportunities it offered, would never have been able to enter upon a Cambridge career—had done remarkably well in the Triposes. In 1908, for instance, out of eighteen students, six gained Firsts, and seven Seconds, a higher percentage than was to be found in any Oxford or Cambridge college, not excluding Balliol or King's. On the professional side the members of the college were reported upon by the Teachers' Training Syndicate as the best of all those who sat for the diploma, while of all the training colleges in England the Cambridge college was the only one to place all its men immediately on leaving. Their average commencing salary was £150, and in that year, when so many trained teachers were seeking work and having to take up the most uncongenial of occupations, the National Union of Teachers congratulated him on the unique position held by the Cambridge college. This was in spite of the later attitude of the Board of Education, which used even to speak of it as a "so-called training college." He used to reply by calling it the "so-called Board of Education." Heaven forbid that he should ever attempt to investigate its policy! Would that he were in Parliament to speak his mind on the subject! Lord Rosebery had been desiderating men; the Cambridge Day Training College was producing men.

The West Riding County Council has decided to reduce materially its expenditure on higher education. It was stated that the Education Committee are extremely sorry to have to reduce the grants to Universities and to have to cut down the number of scholarships; but it was absolutely necessary. The proposed reductions even were altogether insufficient to bring down the expenditure to the present rating (3d. in the £), and the Committee had therefore appointed a deputation to wait upon the President of the Board of Education and urge the necessity of immediate further Government aid.

Last year a Committee was formed by the joint action of the University of Leeds, the West Riding County Council, and the Workers' Education Association for the promotion of higher education amongst workpeople. Reports now show that much useful work has been done under the Committee's auspices, mainly through tutorial classes and pioneer lectures. Classes were held during the winter months at Brighouse, Castleford, Hebden Bridge, Wakefield, and Bradford. There were necessarily many initial difficulties to be overcome, and these were accentuated by the intervention of the General Election; but, on the whole, the classes proved equal to the strain. An analysis of the ages and occupations of the students makes it evident that the great majority of the students that have been attracted are precisely the kind for whom the classes were designed. The subjects were industrial history and modern social conditions. Almost all the students are actively engaged in trade union, co-operative and friendly society, religious and political work.

Principal Child, of Reading University College, who has returned from a six weeks' trip to Canada and the United States, gave an informal lecture on his experiences to the Students' Representative Council and friends.

People [he said] had asked what he thought of America. It was easy to criticize things, manners, and customs. It was easy to find fault with the Universities; to say they went in for over-building and to find points on which they differed from our own practices; there were many grounds on which it was possible to say things were not as they would desire them. He could say a great deal about them. One thing he felt was that Canada and the United States had a great future, not only because of the vastness of their natural resources, but because they believed in education. They did not talk about it and were not bored by it. They believed in University education also. It was the thing which the visitor appreciated most and was most impressed by. The deputation came home feeling, in the first place, that it would be madness and folly for a people like our own not to be increasingly attentive to the things America and Canada were doing in the matter of education; and, in the second place, that it was their duty to try to spread in our own country something of the same kind of public conviction as to the necessity of University training for a larger proportion of our people, both men and women. The subject demanded determination, judgment, and patience. He had come back feeling persuaded that they must put into their work more determination, better judgment, and more patience, if patience should be required. If they had those three things they would not fail. They would obtain the support of individuals and of the public, which was necessary to the realization of the enterprise they had in hand. "I believe," he said, "we have those things—determination, judgment, patience—and for my part I have come back from America very strongly feeling that in putting our hand to that enterprise we do not intend to fail."

The Northampton Polytechnic Institute, Clerkenwell, is going ahead in aeronautics. The silver medal offered by the Women's Aerial League to the best student in the pioneer courses in Aeronautics, held during the past session, has been awarded to Mr. Duncan George (Mr. E. R. Moffat *proxime accessit*). In continuation of these evening courses, extended courses of a more complete and practical nature are being arranged for next session, and Mr. F. Handley Page, of the firm of Messrs. Handley Page, Ltd., aeronautical engineers, has been appointed to take charge of these courses. Full details will be announced shortly. There is also under consideration the establishment of full-time day courses in Aeronautical Engineering, extending over four years, similar to the day courses in Electrical and Mechanical Engineering established some years ago. A preliminary announcement has already been made in connexion with these day courses, and fuller particulars will be ready shortly.

The following resolution was passed at the Sixth National Peace Congress, recently held at Leicester:—

Whereas the aim of national education should be to create intelligent, generous, and independent citizens, and whereas the aim of the militarist party in seeking to capture the public secondary school and to link young boys to the Army organization by means of cadet corps and rifle shooting contests at Bisley is to turn the youth of the land into supporters of the militarist view of life:

This Congress calls upon liberal-minded head masters actively to oppose the method of this new militarism in the interests of a liberal and humanizing education.

Further, the Congress urges upon all elementary-school teachers, and upon the Authorities controlling the public elementary schools, the supreme need of developing in young children the ethical sense of justice, of teaching them that there is but one moral code for nations and for individuals, and of setting before them the ideals of a higher humanity aiming at life-saving and human brotherhood rather than of power obtained by war and brute force.

The annual distribution of prizes of the North London Collegiate School took place on July 13 in the Clothworkers' Hall of the school, Sir Owen Roberts in the chair. The Head Mistress (Mrs. Bryant, D.Sc., Litt.D.) opened her report with the statement that this year was the sixtieth anniversary from the foundation of the original school in Camden Street. She went through the long list of the year's successes. On the social side of the school life, the most noteworthy event to record was the acquisition of a playing-field of two and a quarter acres close to the school. In the absence of Lady Roberts, Sir Owen Roberts distributed the prizes. In his address to the girls he referred to the great changes which had taken place in women's education in the last half century. He gave it as his opinion that the acquirement of knowledge in a woman would never tend to make her less womanly, and that it was absurd to suppose that a woman, however learned, would ever "desert an infant for a quadratic equation." He concluded an interesting and amusing speech with a list of famous women, beginning with Miss Florence Nightingale and ending with Mrs. Fawcett and Mrs. Pankhurst. During the afternoon the girls sang some charming songs under the conductorship of Mrs. Manson.

Prebendary Reynolds, the Archbishops' Inspector of Church Training Colleges, has sent to their Graces his report for 1910, in which his main conclusion is that "the work has never been better done in our colleges than last year." He notes the apparent absence of any danger ahead. The colleges have enjoyed "a peace to which we are unaccustomed," with the result that there has been "a development, in the absence of agitation, in the right direction," and the position has been greatly strengthened through the consequent opportunity "for silent growth and for clearer understanding of our aims," which are to provide a chance "of learning how to teach religion even to those who do not accept all the truth as the Church believes it." A statistical table shows that the number of men admitted to the colleges under the new (*i.e.*, the McKenna) regulations fell from 76 to 50, while the number of women increased from 101 to 131. The largest number of men thus admitted at any college was eleven at Carmarthen, and of women seventeen at the North Wales College. The Inspector says "there has been little inconvenience expressed at the presence of Nonconformists in the colleges, and certainly such students themselves have been gainers by the arrangement." The principals have been naturally anxious to abstain from anything that might have even the appearance of proselytizing. The Inspector is conscious that many, "chiefly outside our colleges," may not agree with him, but his own conviction is that the presence of these Nonconformist students "makes for peace and goodwill much more than many elaborate schemes to promote these objects." Reports are added from Winchester, Battersea, and Derby to show the systems adopted for training the students to give lessons in religious knowledge.

At the annual meeting of the Society for the Promotion of Hellenic Studies, Dr. George A. Macmillan, the honorary secretary, presented the annual report, which stated that nearly all the cost of fitting up the society's new home in Bloomsbury Square had been met by special donations, but the larger scale on which the library was to be maintained would necessitate an increase of regular expenditure. The membership had increased to nearly a thousand, and the number of subscribing libraries to two hundred. Dr. F. G. Kenyon, of the British Museum, had been chosen to fill a vacancy in the list of vice-presidents. Prof. Percy Gardner, in his presidential address, said that the year had not been one of extensive or remarkable excavations. The most promising sites in Greece were rapidly being exhausted, though there was still a great field for research in Asia Minor. Mr. Evans had, in the last few days, reported the discovery of graves of considerable interest in Crete. At Sparta a Mycenaean city had been discovered on the opposite side of the Eurotas from the city of historic times. Dr. Brückner had found, in the chief burying ground of early Athens outside the Dipylon gate, a line of great public tombs, each erected in honour of the citizens who had fallen in battle during a particular year. As important in its way as excavation, though less attractive, was work in museums; and this had gone on apace. Unhappily, the official publication of the results of French excavations at Delphi was still delayed. There was little wonder that some German savants had lost patience and questioned many of the attributions by the French scholars. Criticizing the modern tendency to neglect the classics and ancient history in education, the president said it remained to be seen whether any great civilization could exist without a Greek and Roman basis; no such thing had yet existed among white men. Mr. A. H. Smith, keeper of Greek and Roman antiquities in the British Museum, described, with the help of lantern slides, the recently completed rearrangement of the pedimental sculptures of the Parthenon at the Museum.

The British Universities' Students' Congress met in Birmingham. About fifty delegates were present from all the Universities in the Kingdom, except Oxford and Cambridge. Sir Oliver Lodge, Principal of Birmingham University, attended the opening proceedings and gave the delegates a cordial welcome to the city. It was announced that, St. Andrews finding it more convenient not to have the congress next year, it would meet at Cardiff, and Bristol had offered for 1912 or 1913. A resolution was adopted asking that the London Students' Council should be represented on the Senate of the London University. The report of the International Academic Committee stated that the committee during the year has had a sudden and very great development. It had been found necessary to appoint Honorary British Academic Consuls-General in Switzerland and the United States. New Consuls had been appointed in the following University towns:—Rostock, Zurich, Fribourg, Geneva, Basle, Ann Arbor, Charlotteville, Chicago, Columbus, and Pittsburg. The committee had been successful in securing for British degrees greater recognition and privileges than heretofore in some of the Universities in Switzerland. The committee was acting in concert with the Foreign Office to endeavour to induce the German authorities to withdraw a recent regulation abolishing privileges previously given to British graduates offering themselves for German degrees. It was also resolved:—"That this congress is of opinion that the present policy of the International Interchange of Students Committee—namely, the institution of vacation scholarship tours—is detrimental to the ultimate success of the main part of their scheme, and urges them to develop arrangements for the actual interchange of students whereby the scholars would spend one or more terms in the University or Universities visited."

The Women's Congress held at the Japan-British Exhibition discussed (among many other subjects) Physical Training and Organized Play. Fräulein Wilke, of the Chelsea Polytechnic, urged that more time should be given to physical education in the schools. While twenty-five hours were given each week to mental work, only one hour (she said) was given to physical exercises, and these frequently took place in stuffy schoolrooms with all the windows shut. She asked for a minimum of twenty minutes in each of the five school days. Any comprehensive scheme for the physical education of girls should comprise gymnastics, dancing, and games. Net-ball was the ideal game for girls, and fortunately its popularity was steadily increasing. Some games were too cramped and one-sided, as, for instance, hockey. Lacrosse was too strenuous for delicate girls. Dancing was beneficial in the widest sense. It encouraged lightness and grace, and should also encourage graciousness of manner. The teachers responsible for the physical exercises in the schools should be properly trained, and, if individual attention was to be given, no class should exceed thirty in number. Proper shoes for drill were as necessary as books for lessons and should be provided by the authorities. Mr. Cecil Sharp pleaded for morris dancing, which would encourage and nourish the spiritual, instructive, and imaginative faculties. Beginning with the folk dances, which were the wildflowers of the dance world, springing from the human heart as naturally and spontaneously as the buttercups and daisies out of the uncultivated soil, they could pass on to the minuet and gavotte, which were developed from the dances of the people. Demonstrations of morris dancing were given by girl students from the Chelsea Polytechnic, and a troop of little children belonging to the Guild of Play gave a selection of old

country and national dances under the direction of Mrs. Kimmins, the organizer of the session.

A MEETING of the Executive Committee of Secondary Teachers of Ireland was held in St. Andrew's College, Dublin, on July 2. The Chairman of the Association, Mr. P. Kennedy, presided. The following resolutions were passed unanimously:—

1. (*a*) That we welcome with gratitude the sympathetic resolution of the Roman Catholic Bishops, passed at Maynooth on June 21, in reference to the status of lay assistant teachers in Irish secondary schools, and we beg to direct the attention of the Commissioners of Intermediate Education, and of the Irish public and press, to its reasonable terms, with a view to enlist the support of all creeds and classes in Ireland in securing that, in the changes in the Intermediate Board's income foreshadowed by the Chancellor of the Exchequer's statement, a remedy will be found for the teachers' unsatisfactory status. (*b*) That copies of this resolution be sent to the Episcopal body, to the leaders of the Irish political parties, to the Intermediate Board, the Prime Minister, the Chancellor of the Exchequer, the Chief Secretary, and the Press.

2. That we respectfully ask for the co-operation of the Intermediate Board in the agitation to secure an increased money grant for secondary education and in ensuring that part at least of the money promised to the Intermediate Board under the new Budget be employed in improving the salaries of, and in providing pensions for, lay teachers in secondary schools.

3. That the Intermediate Board be requested to receive a deputation from the Association to put before the Board the claims of the assistant teachers.

4. (*a*) That we strongly protest against Professors and Lecturers in the colleges of the National University holding teaching appointments other than their professorships or lectureships in the said colleges, and particularly against their holding teaching appointments in secondary schools or institutions giving an education of a secondary character, and that we call upon the Senate to enforce the statutes in this respect. (*b*) That, as University appointments are often filled from the secondary schools, we consider it unfair to the secondary teachers that, in a country where so many are compelled to emigrate for a livelihood, dual appointments in the University Colleges should be given to any Professor or Lecturer.

5. That we beg to call the attention of the public to the following important paragraph from the "Statement of the Joint Committee representing the heads of secondary schools in Ireland," just issued, and referred to by the Bishops in their resolution on secondary education: "The most important of all the results of the granting of the claim set forth here would be the establishment of a regular profession of secondary teachers entitled to suitable salaries and pensions."

THE Conference on higher education in South Africa, attended by Mr. Malan and representatives of the Education Departments of all four Provinces, concluded recently at Cape Town. The Conference (says *South Africa*) came to the conclusion that, for the purposes of the South Africa Act, higher education should include education beyond the standard of matriculation, or a standard considered by the Minister to be equivalent thereto, which is carried on in an institution established under a special statute, and any extension or continuation courses carried on in connexion with such an institution which the Minister may approve, and courses for the training of teachers followed in institutions to be afterwards named. It is held desirable for the future that a uniform system should be followed in regard to the provision of buildings for educational purposes, the opinion of the Conference being that all money required for such buildings should be obtained out of a central loan fund, except in those special cases where Parliament decides to provide for them out of revenue. The Conference deprecated undue multiplication of chairs of pedagogy in University Colleges, and resolved that in any case no chair should be established unless there be associated therewith means for the practical training of the students concerned. A conference was recommended to be summoned by the Minister of Education of delegates from the University of the Cape of Good Hope and the South African School of Mines and Technology, for the purpose of discussing the granting of certificates and degrees in mining.

AT the Garden Club of the White City, Baron Heyking, Imperial Russian Consul-General, entertained at dinner Prof. Cholmogoroff and his party of twenty-nine Russian technological students, who for seven weeks had been inspecting engineering works in this country. In proposing "Success to the Excursionists and the Visitors," he thanked the London Chamber of Commerce for the assistance they had rendered on that and many other kindred occasions, and pointed out that in the last three years the relations between Russia and Great Britain, economically, socially, and politically, had increased enormously. The old distrust, and even open enmity, had given way to a consciousness of the solidarity of the interests of the two countries. There was a growing desire of the peoples of each to study the language of the other. Prof. Cholmogoroff, in reply, said every readiness had been shown by manufacturers and municipal and other authorities both in London and in the provinces to show them everything worth seeing and to give every explanation needed. They were deeply impressed with the progress and industry of this great country. He submitted the toast of "The Prosperity of Friendly England." Sir Albert Rollit, in responding, said that the prospects of an increase of trade between the two countries were most promising. There was no greater field for industrial development than Russia. On the other hand, England had capital which might be well applied in that development. Mr. C. E. Musgrave (Secretary of the London Chamber of Commerce) and Mr. R. S. Fraser also responded.

EMERITUS PROF. THOMAS HAMILTON CORE, M.A., died in his seventy-fourth year. A native of Lanarkshire, he distinguished himself both in Mathematics and in Classics at Edinburgh University. For five years he was Lecturer in Mathematics in the Church of Scotland Training College, Edinburgh; for five years, Vice-Principal of the International College, Isleworth; and for thirty-five years Professor of Physics in Owens College, Manchester. He retired in 1905. He took an active interest in education outside the University, and was for some time a member of the Manchester School Board.

MR. ROBERT RUSSELL, I.S.O., one of the first Superintendents of Education for Natal, died in New York. He was born at Edinburgh in 1843. He was largely responsible for the system of primary education now established in Natal, and he founded what is said to be the first cadet corps of the Empire in 1867. He was Natal's representative on the Council of the Cape University in 1896, and his services were recognized by the Natal Parliament in the shape of a special Act granting him a pension equal to full salary when he retired. He is the author of "Natal: The Land and its Story," on a new edition of which he was engaged shortly before his death.

UNIVERSITIES AND COLLEGES.

London.

A DEPUTATION from the University of London waited (July 19) on the Chancellor of the Exchequer in his private room to urge that the grants to the University should be co-ordinated. The Chancellor of the Exchequer was accompanied by Mr. Runciman, Mr. Hobhouse, and Sir R. Morant. Among the members of the deputation were Prof. Dr. Hill (Vice-Chancellor), Sir Edward Busk, Sir Philip Magnus, M.P., Sir William Collins, M.P., Dr. Foster, Dr. Buzzard, Sir J. Wolfe Barry, Sir F. Mowatt, Dr. Walmsley, Mr. Sidney Webb, and Mr. Hartog. Sir P. Magnus, in introducing the deputation, pointed out that £8,000 a year was received by the University for the general purposes of administration, and a share of the Treasury grant of £100,000 which was distributed among University colleges. The latter grant was applicable only to the University and King's Colleges. These colleges were considering the necessity of applying to the Board of Education, under the regulations for technical schools, for a further sum. Grants from the Board of Education, however, were subject to conditions which were not properly applicable to institutions giving higher education, and complete freedom in teaching was essential in University education. Sir William Collins said the rigid regulation of grants in aid applicable in the case of primary and secondary schools was incompatible with the freedom required by Universities. Dr. Hill and Dr. Foster spoke in favour of consolidating all the grants so that a lump sum might be given to the University, to be applied to such purposes as the governing bodies might think best.

Mr. Runciman, in reply, having expressed his sympathy with the object of the deputation, said they had opened up a large question on which neither the Chancellor of the Exchequer nor he could at once give an answer. He felt that the grants to Universities should be administered with a degree of independence different from that which obtained in the case of other educational institutions. He recognized that it was of advantage to Universities and colleges to have a fixed income on which they could rely. Although he did not believe that there was much overlapping, he realized the importance of giving to Universities

and University colleges a considerable amount of freedom in instruction. The matter should receive very careful attention.

The annual Assembly of the Faculties of University College was held on June 30. The Dean of the Faculty of Arts, in his report on the work of the session, stated that the growth of the University Officers' Training Corps had been vigorous. During the past session a section of Artillery had been formed. The corps now numbered 884 members, of whom 258, forming a sub-section of Artillery, two companies of Infantry, and a medical section, were furnished by University College. Steady progress had been made with the scheme for the rearrangement and re-equipment of the college buildings and with the expansion of the college departments and laboratories. A definite step forward had been made in regard to the proposed new chemical laboratories, which stood out at the present time as the foremost need of the college. An option to purchase a suitable site immediately adjoining the north wing of the college had been obtained and an Appeal Committee constituted, and already a sum of £8,000 had been received towards the total of £70,000 that was required. It was hoped that it would be possible within a short time to provide the new accommodation required for the Department of Architecture. The year had been one of quiet and steady progress. In many departments the increase of members and of advanced work was already so great as to make the accommodation provided since 1907 insufficient. This was especially the case with one of the newest departments, Experimental Psychology, which had altogether outgrown its present accommodation. The number of students for the session was 1,507, as against 1,448 last year, not including the 161 students of other colleges attending intercollegiate courses. Of these, 388 were post-graduate or research students, as against 308 last year. The number of internal students registered had been 672, as against 589 last year. One hundred and ten students had obtained University degrees, of whom sixty-seven took honours, and sixteen took degrees higher than that of Bachelor. At the recent intermediate examinations forty students passed in arts, thirty-seven in science, and thirteen in engineering, while twenty-one others were successful in all but one subject. The athletic grounds had led to more men and women taking healthy exercise than ever before. Sir Thomas Raleigh, K.C.S.I., the visitor of the year, and the Provost delivered appropriate addresses.

At King's College a large number of University successes were announced (June 29), including five M.A.'s, twenty-three B.A.'s, thirty-three B.Sc.'s, and nine B.Sc.'s (Engineering). The Associateship of the College was awarded to seventy-nine students.

Birkbeck College, says the *City Press* (July 16), is in financial difficulties. So serious is the position in fact that, unless assistance is forthcoming, the governors will be unable to carry on the institution. The governors have applied to the County Council for assistance, and it has yet to be seen what the result of the representations made will be. Last year's statement of the income and expenditure of the College shows a balance on the wrong side of nearly £1,100, and it is stated that additional help to the extent of £1,000 per annum is required to place the institution on a sound financial basis. The crux of the financial situation lies in the fact that, whilst during the past five years the number of students has diminished from 2,863 to 1,447, the sum payable in salaries has increased from £6,803 to £10,342. These figures require explanation in order that they may be seen in their true relation and significance. Although the number of students has decreased, the hours devoted to instruction remain about the same. In 1904–5 the student hours were 154,000; and in 1908–9 151,000. During these five years the tuition in elementary subjects has been abandoned, and work has become much more advanced in character. This fact has necessitated an improvement in the qualifications of the teaching staff; hence the considerable increase in the item of salaries. At the present time there are four main sources of income. These may be illustrated from last year's financial statement. During the twelvemonth, £4,400 was received from class fees, £1,550 from the City Parochial Foundation, £4,500 from the County Council, and £2,200 from the Board of Education. This, as has been pointed out, is insufficient to meet the needs of the College.

The attendance at the London University Holiday Course for Foreigners this year numbers 250, while as many as 70 had to be refused. They represent fourteen nationalities, many of them coming from Germany, France, Denmark, and Sweden. A considerable proportion of them are teachers.

Edinburgh.

The following are the regulations as to examination for entrance bursaries in Arts (awarded by open competition) made by the Senatus of the University of Edinburgh with the approval of the University Court, under the powers given in Ordinance No. 57 of the Commissioners under the Universities (Scotland) Act, 1889, as altered by Ordinance of the Edinburgh University Court:—

The subjects of examination shall be—Latin, Greek, Mathematics, French, German, English, History and Geography, Italian, Spanish, and Celtic. The full marks for each subject shall be 100.

Every candidate may take up four different subjects, but must select at least two from the following list of four alternatives:—Latin, Greek, Mathematics, French or German.

The papers for each subject shall be the papers on the higher standard set for the Preliminary Examination in Arts, together with an additional paper. The apportionment of the full marks between these two papers shall be left to the University examiners in each subject. It is to be understood that in the additional paper in mathematics questions on elementary applied mathematics will be set.

In order to give the secondary schools and the various patrons who utilize the University bursary examination sufficient notice, these regulations shall not come into force until October, 1911.

No candidate can obtain a bursary in Arts who shall not have passed the Preliminary Examination in Arts or its equivalent.

National University of Ireland.

It seems (says the *Irish Times*) that the advocates of "essential Irish" in the National University of Ireland have won the day. The Senate have decided that the Irish language is to be compulsory at matriculation in 1913, and, we presume, in all subsequent years. The fight has been raging since the University Bill became law. The Gaelic League, the Sinn Féin Party, and all those others who regard a knowledge of Irish as the hall-mark of the revival movement, insisted from the beginning that a University in which Irish was not compulsory would not be "national" at all. In their view the Senate had to decide between two ideals—an "anglicized" University imitating, and inferior to, Dublin University, and a native institution which would concentrate and develop all the Celtic elements in the national life. The Senate's position was exceedingly difficult. Some of its members, as well as a large number of educated Roman Catholics in Ireland, believed that compulsory Irish would be a serious drag on the University's progress. On the other hand, the advocates of compulsion had a good deal of support in the country. They made the question a political one, and captured many of the district and county councils. The county councils play a large part in the University's finance. It is poorly endowed, and would be heavily handicapped without the funds (some £60,000 a year) which the councils are empowered to provide for county scholarships. A large part of this sum was in danger if the Gaelic League's demand was refused, since many of the councils made the grants dependent on the adoption of compulsory Irish. Moreover, if the proposal were rejected, the University would have to face an agitation—partly political, partly sentimental, and, no doubt, partly educational—which would certainly prove annoying and, perhaps, really dangerous. The Senate had to balance one difficulty against another.

The Roman Catholic Archbishop of Dublin (Most Rev. Dr. Walsh), in distributing prizes at Holycross College, made a long statement about the system and working of the National University of Ireland, of which he is Chancellor. He dwelt upon the disadvantages in costliness and complexity of the federal system, on which the University has been established. Owing to the distances which separated the three University Colleges, every meeting of the Senate cost the University between £60 and £70, meetings of the General Board of Studies between £80 and £90, and of the Faculties between £250 and £300. The division of the old Royal University grant of £20,000 in equal proportions between the National University and the Belfast University was monstrously inequitable, especially as Belfast was subject to none of the expenses involved in the complexity of the federal systems. The Archbishop paid a warm tribute to Mr. Birrell's tact and energy in connexion with the establishment of the University, and especially thanked Mr. Balfour for the incalculable help of his brilliant advocacy in this matter of University education. The numbers of students in attendance at the lectures in the three University colleges during the present year were as follows: Dublin, 530; Cork, 368; Galway, 128; or a total of 1,026.

COLLEGE OF PRECEPTORS.

HALF-YEARLY GENERAL MEETING.

THE ordinary Half-yearly General Meeting of the members of the Corporation was held at the College on Saturday, July 16.

The SECRETARY having read the advertisement convening the meeting, the Rev. RICHARD LEE was appointed Chairman.

The Report of the Council was laid before the meeting and was taken as read, a copy having previously been sent to every member of the College. It was as follows:—

REPORT OF THE COUNCIL.

The Council beg to lay before the members of the College the following Report of their proceedings during the past half-year:—

1. During the past half-year a course of twelve lectures on "Rational and Experimental Psychology as applied to Education" has been delivered by Prof. J. Adams. A course of twelve lectures on "Recent Studies in the Art of Teaching" will be given in the autumn by Prof. J. W. Adamson.

2. The Christmas Examination of Teachers for the College Diplomas was held on December 27 to 31, 1909, and was attended by 479 candidates—324 men and 155 women. During the past half-year the Diploma of Fellow has been conferred on 2 candidates, that of Licentiate on 29, and that of Associate on 121, who had satisfied the prescribed conditions.

3. The number of entries for the Midsummer Certificate and Lower Forms Examinations is 4,420. The Professional Preliminary Examination was held in the first week in March, and was attended by 364 candidates.

4. During the past half-year the Council have conducted the examination and inspection of four schools by visiting examiners.

5. The examination of pupils of schools in Newfoundland, which the Council are again conducting on behalf of the Newfoundland Council of Higher Education, will be held at 120 centres. There has been a steady increase in the number of entries for these examinations, which now amount to over 3,700, arranged in four grades, which correspond approximately to the four grades of the College Certificate and Lower Forms Examinations.

6. At the members' meetings held during the past half-year the following lectures have been given:—"Demonstration Schools: their Purpose, Method, Results," by Prof. J. J. Findlay, M.A.; "School Recognition in England, in the light of foreign practice," by Mr. J. S. Thornton, B.A. Reports of the lectures have been published in *The Educational Times*.

7. The Council have decided to hold a winter meeting of teachers in the second week of January next, and to arrange for a Conversazione in connexion therewith. It is hoped that the meeting will prove as great a success as previous similar meetings.

8. During the past half-year nine new members have been elected, and sixteen have been admitted to the privileges of membership under Section II, Clause 5 of the By-Laws. One name had been removed from the list, and notice has been received of the withdrawal of seven. The Council regret to have to report the death of the following members:—The Right Rev. Bishop Barry, Rev. J. T. Bell, Sir William Bousfield, Mr. F. B. Brunwin, Rev. Dr. Carver, F.C.P., Mr. A. Harvey, Mr. N. John, Miss M. A. Reynolds, L.C.P., and Mr. G. F. H. Sykes.

9. In accordance with a resolution passed at the last General Meeting of the members of the College, the Council have continued their consideration of the question "Whether by any methods the work and influence of the College may be increased." It appeared to them that the inquiry might be more fruitful if the co-operation of the members could be secured; and accordingly, in February last, a letter, inviting suggestions, was addressed to all members residing in the United Kingdom. A satisfactory response was made to this invitation, a large number of suggestions from members being received during the months of March, April, and May. The consideration of the suggestions was referred to three committees, which have already made some progress with the work, but the Council are not yet prepared to make definite recommendations.

With reference to paragraph 3, Mr. NEWSOME remarked that the published class-lists of the Certificate Examinations seemed to him to point to a decrease in the entries for science subjects, particularly in Chemistry, in which there was not a single distinction in the First Class at the Midsummer Examination last year. This he was inclined to ascribe both to defects in the syllabus and to a want of care on the part of the examiners and revisers in seeing that the questions set were within the prescribed limits. He wished to move for a return of the entries for science subjects at the recent Certificate Examination and for the results of the examination in those subjects.

The DEAN took exception to the general statement made by Mr. Newsome, which was not supported by the most recent reports of the results of the examination. There had been no disproportionate decrease in the entries for science subjects. The papers set were revised by specialists in the several departments, and the examiners were all competent and experienced men. Suggestions for modification of the syllabuses always received the most careful consideration.

Mr. NEWSOME said his object had been to ventilate the matter. He withdrew his motion.

Mr. THORNTON asked, with regard to paragraph 7, if members could be informed on what lines it was proposed to hold the meeting in January. It seemed probable that in the first week in January the attention of teachers would be distracted by numerous other meetings, which might unfavourably affect the attendance at the College meeting. He suggested that it might be well if the College could co-operate with other bodies—*e.g.*, with the London County Council. He further suggested that arrangements should be made to afford ample opportunity for discussion after each lecture.

The DEAN observed that the Council felt that they had to do a kind of work somewhat different from that done by the County Council. It had been found in the past that there were a sufficient number of teachers desiring to attend lectures on definite subjects to make the meeting a success, and there were other teachers who desired to bring forward new ideas for criticism. As long as there was found to be a sufficient demand for such lectures, the Council felt that the College was doing useful work. Prof. Sadler had promised to give the opening address and care would be taken to make the lectures as practical as possible.

Mr. BARROW RULE said he would like to say a word on the matter referred to in paragraph 9. At the last meeting he had remarked that the Council would be very glad to receive suggestions for extending the work and influence of the College, and subsequently, at his suggestion, the Council had issued a letter inviting suggestions from members. About fifty members had responded; their suggestions were now being considered by the committees to whom they had been referred, and he hoped that the inquiry would issue in practical recommendations being laid before the members at their next meeting. When he had the honour, fifty years ago, of introducing the question of Registration, some who were then present would recollect that the underlying principle of registration was the independence and self-government of the scholastic profession. It was all very well to talk about co-operation with other bodies; but the members of the College had a duty imposed upon them by their Royal Charter—viz., to advance the cause of education and promote the interests of the scholastic profession. Let them do their own work and stand by their guns, and they would, he felt sure, reap the reward of earnest endeavour. He hoped that, as the result of the suggestions that had come in, members would find manifested on the part of the College a more earnest desire than ever to defend the position of the private-school teacher and the cause of secondary education. He hoped a day would come when secondary education would be entirely independent of the State. At present the State had complete control of the elementary education of the country, and now there appeared to be an endeavour to obtain complete control of secondary education. He ventured to think it was the duty of the College, in the interests of education, to resist any such attempt.

Mr. THORNTON said it was nearly fifty years since the College took up the question of Registration, and they had been working away at it at intervals ever since. They had not got it; but there was something more important which they had got, which had been given to them without asking, and which, if properly carried out, would include all that registration of teachers could do for them. He referred to the recognition of schools. The College, by its action, had shown that it was profoundly dissatisfied with the progress of the movement to-day and the way in which it had been prosecuted. He hoped that, half-year after half-year, they would insist on keeping this subject in the

forefront of their programme, and he thought that in this he represented the feeling of the present meeting.

The Rev. Dr. Dawes said he was convinced that the registration of teachers would be of no permanent benefit to teachers themselves, and that the registration of schools would be absolutely useless for the advancement of secondary education in private schools. He regarded independence as a *sine qua non* for the profession of a teacher if he was to exert a proper influence over his school and his pupils; and if he did not possess the capacity for exercising such personal influence his school must decline and he would fall out of the profession. As teachers, they should hold fast together, and the flag he would wish to see raised should have inscribed on it: "The Union of Teachers of Private Schools centralized in the College of Preceptors." It had been suggested that the College should unite with some of the other educational bodies, and if a union could be effected between the College and the Private Schools Association he believed that it would be for their mutual advantage. He was also of opinion that those persons who had been admitted to the privileges of membership of the College without payment, on account of having obtained one of the College diplomas, should be called upon to pay a small subscription for the advantages they enjoyed.

Mr. Millar Inglis regretted that some of the suggestions that had been offered by members of the College had not been mentioned to-day, for they would have led to a very interesting discussion. He agreed with Mr. Thornton that some reference to registration should have been made in the report. He was sure that if he would bring forward a resolution with reference to registration, the meeting would gladly adopt it. It was generally agreed that teachers ought to be registered, and he believed that the reason why the results of the movement for registration had fallen short of expectation was to be sought in the obstacles that had been placed in the way by the Board of Education.

Mr. Newsome remarked that they had heard from Mr. Runciman in the House of Commons that the whole subject of registration, and in particular the Conference held in November last, was now being considered by the Board of Education, and members would possibly remember that at the end of that speech he referred to the possibility of the return of the fees that had been paid by those who had been registered. The matter had already been discussed by several associations of teachers, and he would suggest the desirability of advising the whole of the members whose names appeared on the old register to apply *en bloc* for the return of their registration fees.

The Report of the Council was then adopted.

The Dean then presented his report, which had been printed and circulated among the members attending the meeting. It was as follows:—

The Dean's Report.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various examinations.

The Midsummer Examination of candidates for Certificates took place on the 28th June to the 2nd July at 115 Local Centres and Schools. In the United Kingdom the Examination was held at the following places:—Abingdon, Barry (Glam.), Belfast, Bewdley, Birmingham, Birr, Blackpool, Brighton, Bristol, Bruff, Cahir, Cardiff, Carlisle, Carmarthen, Carnarvon, Charleville, Cheltenham, Chertsey, Chichester, Clapham, Cork, Croydon, Devonport, Dublin, Dumfries, Durham, Ealing, Eccles, Edinburgh, Exeter, Eye (Suffolk), Falmouth, Farnham, Felixstowe, Folkestone, Forest Hill, Fraserburgh, Goudhurst, Grimsargh, Grove Ferry, Haverfordwest, Hawkhurst, Herne Bay, Highgate, Huddersfield, Inverurie, Jersey, Kanturk, Kirkwall, Launceston, Leeds, Lerwick, Liverpool, London, Lostock Gralam, Manchester, Margate, Melton Mowbray, Merthyr Tydfil, Midleton, Mountmellick, Newcastle-on-Tyne, Newquay, New Ross, Nottingham, Pencader, Penistone, Pentre, Plymouth, Porth, Portsmouth, Red Hill, Richmond (Surrey), Rochester, Rugeley, St. Leonards-on-Sea, Scorton, Seaford, Sheffield, Southampton, Southport, Stamford, Stoke-on-Trent, Streatham Hill, Sunderland, Taplow, Taunton, Thurles, Waterford, Wellington (Salop), Westcliff-on-Sea, West Hartlepool, Weston-super-Mare, Weybridge, Wicklow, Wigton, York. The Examination was also held at Gibraltar, Cape Coast Castle, Colombo (Ceylon), Nassau (Bahamas), Georgetown (British Guiana), and Wei-hai-wei (N. China).

The total number of candidates examined (not including 203 examined at Colonial Centres) was 3054—2104 boys and 950 girls.

The following table shows the proportion of the candidates at the recent Midsummer Examination who passed in the class for which they were entered:—

	Examined.	Passed.	Percentage.
First Class [or Senior] ...	409	208	51
Second Class [or Junior] .	1223	649	53
Third Class	1011	783	77

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (411 in number) who entered for certain subjects required for professional preliminary purposes.

The number of candidates entered for the Lower Forms Examination (not including 99 examined at Colonial Centres) was 934—478 boys and 456 girls. Of these 748 passed, or 80 per cent.

At the Professional Preliminary Examination for First and Second Class Certificates, which was held on the 1st to 3rd of March, in London and at nine Provincial Centres, viz., Birmingham, Bristol, Cardiff, Edinburgh, Inverness, Leeds, Liverpool, Manchester, and Newcastle-on-Tyne, 365 candidates presented themselves.

On the results of the Christmas Examination of Teachers, 2 candidates obtained the Diploma of Fellow, 28 that of Licentiate, and 124 that of Associate.

Practical Examinations to test Ability to Teach were held in February and May. At these Examinations 5 candidates presented themselves, and 4 obtained Certificates.

The report was adopted.

Mr. Storr asked whether it was in order for him to propose a resolution relating to the question of registration of teachers. He would be sorry if the meeting separated without some distinct expression of opinion on this matter. One or two speakers had thrown doubt upon the attitude of the College of Preceptors with regard to this question, and had advocated in its place the registration of schools. He was as anxious as anybody could be for the registration of schools, but he did not see why the two movements could not proceed *pari passu*, and he wanted the Council to co-operate with other educational bodies in making representations to the Board of Education. If it were open to him to do so, he would move: "That this meeting regrets that the Board of Education has taken no action on the resolution passed with virtual unanimity by the representative conference of teachers in November last, and urges the Board to carry out without further delay the provisions of the Education Act of 1896 for the creation of a Registration Council." Representatives of the College had sat for four years on the past Registration Council and had also attended the meeting at the Clothworkers' Hall. In his view the training of teachers was an essential part of the question of the registration of teachers, and training was one of the principal objects of the College as set out in the Charter.

Mr. Rushbrooke seconded the resolution, and expressed the opinion that it was entirely in consonance with the policy of the Council.

Mr. Newsome hoped the Chairman would see his way to allow Mr. Storr's resolution to be put to the meeting, even at the cost of some slight irregularity. The matter was distinctly urgent, and he would be sorry for the College of Preceptors to fall behind other educational associations in pressing this matter on the attention of the Board of Education. It was due to all members of the College, and it was especially due to teachers connected with private schools, that the Council should continue to advocate registration to the very best of their ability. If a private school was to exist as such in this country, it could only be through registration and through teachers obtaining control over their own profession.

Mr. Barrow Rule expressed his strong sympathy with the substance of Mr. Storr's resolution, and his conviction that, if the resolution were brought before the Council, it would be carried unanimously. But it had repeatedly been ruled that motions could not be brought forward at a General Meeting without notice, and, though he believed the feeling of the meeting to be unanimously in favour of the proposal, they could only proceed in a statutory way.

The Chairman said he thought they were nearly all of one mind with regard to the views put forward by Mr. Storr; but he thought they would also be of one mind that the resolution should not be put when he had read (as he proceeded to do) the by-law requiring notice of motions to be handed in writing to the Secretary at least thirty days before the meeting.

Mr. Storr thereupon withdrew his resolution, observing that this was not a matter requiring discussion in Parliament, as Mr. Runciman could create a Register to-morrow by means of an Order in Council.

A vote of thanks to the Chairman concluded the proceedings.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

An adjourned meeting of the Council was held at the College, Bloomsbury Square, on July 16. Present: Rev. Richard Lee, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage Smith, Mr. Bain, Mr. Barlet, Mr. Baumann, Rev. J. B. Blomfield, Miss Crookshank, Miss Dawes, Mr. Eagles, Mr. Hawe, Dr. Moody, Mr. Pinches, Mr. Rule, Mr. Rushbrooke, Mr. Starbuck, Mr. Storr, and Prof. Foster Watson.

The Diploma of Associate was granted to Mr. W. E. Clarke, who had satisfied the prescribed conditions.

The following books had been presented to the Library since the last meeting of the Council:—

By the City and Guilds of London Institute.—Programme of the Department of Technology for the Session, 1910–11.

By the General Medical Council.—Minutes of the General Medical Council, January–May, 1910.

By Edward Arnold.—Wolff's Les Français d'Aujourd'hui.

By Blackie & Son.—Blackie's English Texts (Boswell's Life of Johnson, Gatty's Parables from Nature, Essays from the Spectator, Milton's Areopagitica, The Spanish Armada); Plain Text Poets (The Lay of the Last Minstrel, Marmion, Goldsmith, Macaulay's Lays, Milton's Shorter Poems); Stories to be Read (Hans Andersen's Fairy Tales); Stories Old and New (Aladdin and other Stories, Gulliver's Travels, The Little Red Purse, A Bright Little Pair); Teachers' Notes on Nature Study; Barbé's Bannockburn; Barr's Practical Mathematics; Chambers and Ker's Words: Their Origin and Use, Books I and II; Findlay's Dewey's Educational Essays; Forbes's First Steps in Coal Mining; Laurence's Tales and Travels; Layng's Elementary Algebra, Books I and II; Marsh's Preparatory Reading and Composition; Peile's Sheridan's The Rivals; Street and Gooderson's Physical Training; Vinall's Natural and Common Objects in Primary Drawing.

By W. B. Clive.—Matriculation Directory, June, 1910; Adie's Junior Chemistry; Bausor's Introductory Course of Chemistry; Carter's Groundwork of English History; Cavers's Life Histories of Common Plants, Botany for Matriculation, and Senior Botany; Dumville's Science of Speech; Fry's Text-book of Geography; Goggin's Shakespeare's Hamlet; Hogan's Government of the United Kingdom; Hulbert's Voice Training; Jude and Satterly's Magnetism and Electricity; Lewis's Elements of Organic Chemistry; Lyster's School Hygiene; Polak's Theory and Practice of Perspective Drawing; Rennie's Nature Study; Stewart's New Matriculation Sound; Welpton's Physical Education and Hygiene; Welton and Blandford's Moral Training; Workman and Cracknell's Geometry, Theoretical and Practical, Parts II and III, Intermediate Geometry, The School Geometry, and Introduction to the School Geometry.

By Mills & Boon.—Carnegy's Kings and Queens of France.

By J. Murray.—"Clari Romani" Series (Agricola, Julius Caesar, and Metellus and Marius); Poole and Lassimonne's Lectures Scolaires Elémentaires (Le Chêne Parlant and Les Voisins de Campagne).

By the Oxford University Press.—Herbertson's Physiographic Introduction to Geography; Milton's Minor Poems; Peacock's Selected English Essays.

By G. Philip & Son.—Mackinder's Distant Lands.

LONDON TRAINING COLLEGE STUDENTS.

The Joint Committee of ex-Students of London County Council Training Colleges for Teachers have issued the following statement:—

Hundreds of young teachers now leaving London training colleges are in a state of considerable unrest. . . . The London students complain that the action of the London County Council Education Committee with regard to what is known as the "College" list materially lessens their prospects of securing satisfactory positions. No student whose name is not on this list can apply for a vacancy in a London provided school. The list this year contains 300 names; but of these only 93 are names of L.C.C. students. To fill the remainder of the 1,050 vacancies which annually occur the Council invites applications from any qualified teacher *outside* the London service; 830 students have not had their names placed on the list, and these complain bitterly of their treatment. Outside London the conditions which govern appointments to the "College" list are practically unknown, and the London student, because he cannot obtain a post under his own Council, is branded as inefficient. Local Authorities also naturally prefer to appoint ex-college students who have been pupil-teachers in their own schools. The London Teachers' Association, in collecting information on this subject, find that many young women teachers have been forced to accept situations as waitresses in tea shops or as cashiers in drapery establishments, whilst cases are not wanting of men students becoming motor-omnibus drivers. As it costs about £300 to fully train a teacher, a serious waste of public money is occurring here. Side by side with this state of affairs the last official report shows that there are 2,000 classes in London elementary schools with over 60 children in each. In the infants' department of a school in Islington each class contains more than 70 children, and one class contains 84. Under such conditions both children and teacher must suffer.

In the elementary schools of England and Wales there are 91,128 trained and certificated teachers, as compared with 64,779 unqualified teachers. Owing to the rising cost of education and the refusal of the Government to increase the grant, Local Authorities prefer the services of the cheap, untrained teacher.

The London students, in protesting, are not taking upon themselves the task of suggesting remedies. They simply aim at making the Board of Education and the London County Council familiar with facts of which these two bodies appear profoundly ignorant.

THE BRITISH ASSOCIATION AT SHEFFIELD.

PROGRAMME OF THE EDUCATION SECTION.

The British Association meets this year in Sheffield from Wednesday, August 31, to Wednesday, September 7. An interesting programme is in course of arrangement for Section L, Educational Science. The President is Principal H. A. Miers, F.R.S., and his presidential address will be delivered on Thursday morning, September 1.

It is intended to give up the whole of Friday, September 2, to the subject of Educational Research, and the meeting will be a joint one with the Anthropological Section. Prof. J. A. Green, of Sheffield, the Secretary of a Committee which has been investigating the mental and physical factors involved in education, will present a report on the present position of educational research at home and abroad. Mr. John Gray, B.Sc., will also present a report on behalf of a Committee of the Anthropological Section on methods of observing and measuring mental characters. It is hoped that Prof. Münsterberg of Harvard will open the discussion, which promises to be an important one. Dr. Lucy Hirsch Ernst, Prof. Lippmann of Berlin, Dr. Kerr (the Principal Medical Officer of the London County Council) and several members of his staff, Prof. C. S. Myers, Dr. T. P. Nunn, Dr. Rivers of Cambridge, amongst others, have signified their intention to take part. Reports will be presented by the investigators of serial observations on school children and others, which have been conducted in London, Liverpool, Sheffield, Wolverhampton, and elsewhere.

On Monday morning, September 5, Mr. J. G. Legge, Director of Education in Liverpool, will open a discussion on "Handwork and Science in Elementary Schools." On Monday afternoon there will be a joint discussion with the Chemistry Section on "The Neglect of Science in Commerce and Industry." Mr. R. Blair, the Education Officer of the London County Council, will open the discussion, and Dr. Bovey, F.R.S., Principal E. H. Griffiths, F.R.S., Sir William Tilden, F.R.S., and others have promised to take part.

On Tuesday morning, September 6, the subject of "Open-air Studies in Schools of Normal Type" will be taken up. There will be papers by Mr. J. E. Feasey of Sheffield, Mr. G. G. Lewis of Kentish Town, and Prof. Mark R. Wright of Newcastle-on-Tyne will read a paper on "A Training College under Canvas." On Tuesday afternoon a joint meeting will be held with the Physiological Section for the discussion of Voice Production. Dr. A. A. Gray, Principal Burrell of Isleworth, Prof. Wesley Mills, Mr. W. H. Griffiths, and Miss Ormée of Sheffield will contribute papers.

In accordance with the usual practice, visits to schools and other educational institutions of interest will be arranged during the meeting.

The Secretaries of the Section are Mr. W. D. Eggar, of Eton; Mr. J. L. Holland (Recorder), County Hall, Northampton; and Mr. Hugh Richardson, of Bootham's School, York.

The Recorder will be glad to hear from members of the Section who are proposing to attend the meeting.

Mrs. Feilden, of Todmorden, who has died at the age of ninety, was all her life closely associated in Lancashire with a circle of active social workers and zealous philanthropists. Being keenly interested in education, she founded several schools, gave numerous and considerable gifts for various educational organizations, and was a munificent benefactor to Manchester University, where she founded the Chair of Education. She was for many years an esteemed member of the Todmorden School Board.

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THE CALENDAR

OF

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FOR THE YEAR 1910—11:

CONTAINING

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1. Papers set at Examination of Teachers for Diplomas, Summer, 1909
2. Do. do. do. Christmas, 1909
3. Papers set at Examination of Pupils for Certificates, Midsummer, 1909
4. Do. do. do. Christmas, 1909
5. Papers set at Professional Preliminary Examination, March, 1909
6. Do. do. do. September, 1909
7. Papers set at Lower Forms Examination ... ... Midsummer, 1909
8. Do. do. ... ... Christmas, 1909

*** Nos. 3, 4, 5, and 6 may be had separately, price, free by post, 7*d.* each set. Nos. 7 and 8, price, free by post, 3½*d.* each set.

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CURRENT EVENTS.

Fixtures.

THE fifth Quadrennial Meeting of the International Congress of Mathematicians will take place at Cambridge in 1912. In connexion with one of the sections of the Congress an International Commission on Mathematical Teaching has been constituted, which includes delegates appointed by the various Governments interested in the Congress, and a series of National Sub-Commissions has been established to assist the International Commission. The President of the Board of Education has appointed Sir George Greenhill, Prof. Hobson, and Mr. C. Godfrey to be the British delegates, and he has, further, appointed an Advisory Committee to assist the Commission in the collection of reports and papers on the teaching of mathematics. This Committee, which is to act also as the British Sub-Commission, has been constituted as follows:—Mr. C. E. Ashford, Sir G. H. Darwin, Mr. C. Godfrey, Sir George Greenhill, Mr. G. H. Hardy, Prof. Hobson, Mr. C. S. Jackson, Sir Joseph Larmor, Prof. Love, and Prof. Gibson—Mr. Jackson being Hon. Secretary. Copies of the reports and papers approved by the Advisory Committee will be at the disposal of the International Commission, and it is intended that they shall ultimately be published as a volume or volumes in the Board's series of Special Reports on Educational Subjects.

* * *

A VACATION COURSE for foreigners, lasting some four weeks (August–September), will be held at the Böttinger Studienhaus (German Institute for Foreigners), Göttingen. Apply to Herr Otto Kämpfer.

Honours.

SIR WILLIAM CROOKES and Mr. Thomas Hardy have been invested with the Order of Merit.

* * *

PROF. A. C. BRADLEY, Dr. Sidney Lee, and Prof. Gilbert Murray have been elected Fellows of the British Academy. The maximum number of Fellows (100) is now complete. The following have been elected Corresponding Fellows:—Monsignor Duchesne (Rome), Prof. Kitteredge (Harvard), Dr. Eduard Meyer (Berlin), M. Senart (President of the French Asiatic Society), and Prof. Windisch (Leipzig).

* * *

MR. D. LLOYD GEORGE, D.C.L., Chancellor of the Exchequer, has been elected an Honorary Fellow of Jesus College, Oxford.

* * *

HARVARD UNIVERSITY has conferred the honorary degree of LL.D. upon Dr. G. W. Prothero; and the honorary degree of D.Sc. upon Sir John Murray.

* * *

DARTMOUTH COLLEGE has conferred the honorary degree of M.A. upon Mr. A. Maurice Low, journalist, Washington, a brother of Mr. Sidney Low.

* * *

MR. W. WHITEHEAD WATTS, Sc.D., F.R.S., Professor of Geology, Imperial College of Science and Technology, has

been elected an Honorary Fellow of Sidney Sussex College, Cambridge. He was formerly a Fellow of the College.

* * *

Mr. Francis J. Lewis, M.Sc., F.L.S., Lecturer in Geographical Botany at the University of Liverpool, has been awarded the Neill Medal of the Royal Society, Edinburgh, for his researches on the stratification of peat deposits in Scotland.

* * *

The Albert Medal of the Royal Society of Arts has been awarded this year to Mme Curie for the discovery of radium.

* * *

Mr. Oscar Browning has been presented with a silver cup and cover by the former students and staff of the Cambridge Day Training College in commemoration of his Principalship during the first eighteen years of the College's existence.

* * *

A portrait of Dr. James, Head Master of Rugby 1895–1909, by Mr. George Henry, A.R.A., has been presented to Rugby School; and a replica of the portrait and a silver dish to Dr. James.

* * *

Miss Dove has received a cheque for £500 in a silver biscuit box from the pupils of Wycombe Abbey School, together with other marks of appreciation.

Endowments and Benefactions.

As an outcome of the recent inquiry of Lord Elgin's Committee, an additional Treasury grant of £40,000 is to be made to the four Scottish Universities: £12,000 each to Edinburgh and Glasgow, £9,000 to Aberdeen, and £6,000 to St. Andrews. The full amount will not be available in the current year—probably only two-thirds. At present the Scottish Universities receive an annual grant of £72,000—£42,000 from the Exchequer and £30,000 from the Local Taxation (Scotland) Account. A condition attached to the new grant is that an annual report be submitted upon the manner in which it is expended, and that an inclusive or composite fee of a uniform amount for all classes in a particular course of study be instituted throughout the four Universities.

* * *

Lord Strathcona, the Chancellor, has given £10,000 to Aberdeen University to endow a Chair of Agriculture.

* * *

The Clothworkers' Company has given £5,000 to Leeds University to complete the front elevation of the Clothworkers' wing of the buildings and to provide extensions necessary for teaching the French system of worsted combing, drawing, and spinning. The Company had already granted £70,000 to the University.

* * *

The Goldsmiths' Company has given £700 for the equipment of the Metallurgical Department of the Chemical Laboratory in Cambridge University.

* * *

On the occasion of the celebration of the 450th anniversary of the University of Bâle, M. Geigi Merian, formerly member for Bâle in the Swiss National Council, has given 250,000 francs to the building fund of the University. The University has also raised a fund of some 330,000 francs towards pensions for children of deceased professors.

* * *

Mr. David Rankin, farmer and capitalist, who has made gifts aggregating some £30,000 to the St. Louis College, is reported now to have made over the whole of his fortune, amounting to 3,000,000 dols., as an endowment for a trade school, reserving to himself an annual income of 3,000 dols.

Scholarships.

Alexandra College, Dublin, offers six Entrance Scholarships (£15 to £42). Examination begins September 14. Particulars from the Lady Principal.

Appointments and Vacancies.

Mr. Edward C. C. Baly, F.R.S., Assistant Professor of Chemistry (since 1889) and Lecturer in Spectroscopy (since 1903) in University College, London, has been appointed to the Grant chair of Inorganic Chemistry in Liverpool University, in succession to the late Prof. J. Campbell Brown.

* * *

Mr. R. R. Marett, Fellow and Tutor of Exeter College, has been appointed Reader in Social Anthropology in Oxford University.

* * *

At King's College, London, Prebendary H. V. Stuart has been appointed Special Lecturer in Pastoral Theology for 1911; Mr. L. W. King, Lecturer in Assyrian; Rev. J. D. Whitney, D.D., and Mr. A. Weiner, M.A., Lecturers in History; Rev. A. Nairne and Rev. H. F. B. Compston, M.A., Lecturers in Hebrew; Rev. S. C. E. Legg, M.A., Lecturer in Aramaic and Syrian; Rev. W. R. Matthews, Lecturer in Philosophy; and Mr. Clifford Sully, B.A., Assistant Lecturer in Psychology.

* * *

Mr. M. W. J. Fry, M.A., has been appointed to the Chair of Natural Philosophy in Trinity College, Dublin.

* * *

Mr. Alfred Patten Thomas, LL.D., County Court Judge, Liverpool, has been appointed Honorary Professor of International Law in Liverpool University.

Prof. Thomas, after ten years in business, was called to the bar 1886; practised in Liverpool; was Professor of Commercial Law at Liverpool University 1903–7; and since 1907 has been honorary Lecturer in International Law.

* * *

Mr. Charles E. Martineau, M.A. Cantab., has been appointed Professor of Accounting in Birmingham University.

* * *

The Rev. Dr. William Stewart has intimated his resignation of the Chair of Divinity and Biblical Criticism in the University of Glasgow, which he has held since 1873.

* * *

Mr. E. M. Ellershaw, B.A., has been appointed Professor of English Language and Literature in Durham University.

* * *

The University of Queensland requires Professors of (1) Classics, (2) Mathematics and Physics, (3) Chemistry, and (4) Engineering. £900 each. Apply to the Agent-General for Queensland, 409 Strand, W.C., by August 31.

* * *

The Professorship of Pure and Applied Chemistry at the Municipal Technical Institute, Belfast, is vacant. £350, rising to £400. Apply (official form) to the Principal by August 11.

* * *

Mr. Joseph Pearson, D.Sc., F.L.S., Chief Demonstrator and Assistant Lecturer in the Zoological Department, Liverpool University, has been appointed Director of the Museum at Colombo, in succession to Dr. Arthur Willey, now Professor of Zoology at McGill University. Dr. Pearson is succeeded by Mr. R. Douglas Laurie.

In Glasgow University, Dr. William Wallace has resigned (on grounds of health) the Lectureship in Scottish Literature, and Sir George B. Douglas has been appointed in his place.—Mr. Fernando Agnoletti, D.Litt., has resigned the Lectureship in Italian Language and Literature.

* * *

Dr. Karl Jost, of the University of Bâle, has been appointed Taylorian Lecturer in German at Oxford.

* * *

A zoologist is required for the Horniman Museum at Forest Hill. £200, rising to £250. Age, twenty-five to thirty-five. Apply (official form) to the Clerk of the London County Council, Spring Gardens, S.W., by September 20.

* * *

Mr. S. Hoole, Lecturer in Theory and Practice of Education and Master of Method, Carmarthen Training College, has been appointed Principal of Sunderland Day Training College.

* * *

Mr. J. D. Coales, D.Sc., has been appointed Principal of the Wolverhampton Technical School.

* * *

Mr. James Robinson, M.Sc. Dunelm., Ph.D. Gött., has been appointed Junior Lecturer and Demonstrator in Physics in Sheffield University.

* * *

Mr. Herbert Lionel Rogers, M.A. Oxon., assistant master, Radley College (since 1906), has been appointed Head Master of King's College School, Wimbledon, in succession to Mr. Douglas R. Smith, M.A.

Mr. Rogers was a Scholar of Christ Church, and took a First Class in Mods. 1882, and a Second Class in Lit. Hum. 1894. He taught at Leatherhead 1894–1900, and at Lancing 1900–1906.

* * *

The Rev. C. R. Loraine McDowall, M.A. Oxon., Assistant Master, Eton College, has been appointed Head Master of the King's School, Canterbury.

Mr. McDowall was a Scholar of Exeter College, and took a First Class both in Mods. and in Lit. Hum. He was a master at Wellington College from 1896 to 1902, when he went to Eton.

* * *

The Rev. William Temple, M.A. Oxon., son of the late Archbishop Temple, has been appointed Head Master of Repton School.

Exhibitioner of Balliol; First class in Mods. 1902, and in Greats 1904; Fellow and Lecturer of Queen's College; Chaplain to the Archbishop of Canterbury.

* * *

Dr. C. G. Seligmann, M.D., has been appointed University Lecturer in Ethnology at the London School of Economics for next session.

* * *

Miss Eleanor Christopher has been appointed Principal of St. Hild's College, Durham, in succession to the Rev. Canon Haworth, who has accepted the living of Haswell in the diocese of Durham.

* * *

Miss A. S. Paul, M.A. Lond., Fellow of University College, London, Senior Classical Mistress, Clapham High School, has been appointed Head Mistress of Notting Hill High School (Girls' Public Day School Trust).

* * *

A Head Mistress (graduate or equivalent) is required for King Edward's High School for Girls, Birmingham, owing to the resignation of Miss E. E. M. Creak, B.A., as from January next. Not over £600. Twenty-five copies of application (special form) and testimonials to the Secretary, King Edward's School, by September 1.

Miss Freda Hawtrey has been appointed Warden of Women Students at the Normal College, Bangor.

Miss Hawtrey was educated at the Royal Holloway College and at Somerville College, Oxford. She took honours in English Language and Literature at Oxford University.

* * *

At the Borough Polytechnic Institute, Mr. A. N. Fitzgerald, B.A., B.Sc. Lond., Science Master at Rochester Mathematical School, has been appointed Mathematical Master; Mr. A. E. Appleton, B.A. Oxon., Assistant Master at Watford Grammar School, French and English Master; and Mr. B. W. Phillips, B.A., part-time German Master.

* * *

Miss Steel, M.A., has been appointed Head Mistress of the Greycoat Hospital School for Girls, Westminster, in succession to Miss Elsie Day, retired after many years' service.

* * *

Mr. E. B. Forrest, William Ellis School, London, N.W., has been appointed Head Master of the County School, Wood Green, N.

* * *

The Rev. Harold Costley-White, M.A., assistant master at Rugby since 1903, has been appointed Head Master of Bradfield College.

Mr. White was educated at Malvern, was Classical Scholar of Balliol, gained a First Class in Moderations (1899) and a Second Class in Greats (1901), and was mentioned with distinction in the Hertford Examination, and, after two years' experience at Sherborne, went to Rugby in 1903.

* * *

Miss Florence Jane Monk, B.A., Principal of the P.-T.'s Centre, Hayward's Heath, has been appointed Head Teacher of the County Secondary School, Newport.

Literary Items.

The original members of the Academic Committee of the Royal Society of Literature, constituted by the Society in co-operation with the Society of Authors, are (27): Alfred Austin, Laurence Binyon, Andrew Cecil Bradley, Robert Bridges, Samuel Henry Butcher, Joseph Conrad, William John Courthope, Austin Dobson, James George Frazer, Edmund Gosse, Richard Burdon Haldane, Thomas Hardy, Henry James, William Paton Ker, Andrew Lang, Sir Alfred Comyn Lyall, John William Mackail, Viscount Morley, George Gilbert Murray, Henry Newbolt, Edward Henry Pember, Sir Arthur Wing Pinero, George Walter Prothero, Walter Raleigh, George Macaulay Trevelyan, Arthur Woollgar Verrall, William Butler Yeats. The Secretary is Dr. Percy W. Ames. Two more—Maurice Hewlett and Arthur Christopher Benson—have been added to the roll of original members. Lord Morley of Blackburn is President, and Mr. E. H. Pember, K.C., Perpetual Secretary. The Committee is limited to a maximum of 40 members.

* * *

Messrs. Jack, of Edinburgh, are offering £200 for the best boys' story. They claim that this is the first time that such a substantial prize has been offered in a competition in juvenile literature.

* * *

It is understood (says the Cape Town correspondent of the *Times*) that it is the desire of the Union Government to establish a central South African residential teaching University at Groote Schuur in order to fulfil Mr. Cecil Rhodes's original idea enunciated twenty years ago. The nucleus of a fund to carry out the project in the immediate future will probably consist of a bequest of £200,000 by a well known South African.

General.

The negotiations for the establishment of a London University Press, somewhat on the lines of the Oxford and Cambridge University Presses, are said to have been successfully concluded. The Board of Management contains members of the Senate, scholars and authors, publishers and printers.

* * *

The London Day Training College has been admitted a school of the University of London in the Faculty of Arts (in Pedagogy only) for a period of five years from October, 1909.

* * *

The English A.K. Travelling Fellowships have been awarded to Mr. Sidney Ball, M.A., Fellow and Senior Tutor of St. John's College, Oxford, and Mr. I. Gollancz, M.A., Litt.D., Professor of English, King's College, London.

* * *

The Executive Committee of the Carnegie Trust have awarded, under their research scheme for 1910–11, 16 fellowships, 35 scholarships, and 66 grants, at a cost of fully £8,000.

* * *

Arrangements have now been completed for the establishment of a Professorship of Coal Gas and Fuel Industries at the University of Leeds as a memorial to the late Sir George Livesey, of the South Metropolitan Gas Company, upwards of £10,500 having been subscribed to the fund initiated for the purpose by the Institution of Gas Engineers. An Advisory Committee has been formed.

* * *

The King has been pleased to become Patron of the Royal Agricultural College, Cirencester.

* * *

H.R.H. Princess Louise, Duchess of Argyll, has consented to become the Patron of the School of Art Woodcarving, South Kensington.

* * *

British Columbia has decided to found a University. Rival claimants of the site are Victoria, Vancouver, and New Westminster. It is said that Mount St. Mary, a hill about six miles east of New Westminster, is likely to be chosen.

THE EDUCATIONAL LADDER.

Aldenham School.—Junior Platt Scholarships: A. N. Faull (Rev. D. H. Marshall, Ovingdean, Brighton), E. E. Fawens and T. G. Lilley (Aldenham School), R. B. P. Wallace (Mr. L. C. R. Thring, Brunswick, Hayward's Heath), A. C. B. Watts (Rev. D. H. Marshall, Ovingdean, Brighton), W. H. Westhead (Aldenham School). House Scholarships: E. G. H. Armitage (Rev. H. W. Waterfield, Temple Grove, Eastbourne), V. T. Bayly (Mr. W. A. Walker, Upcott House, Okehampton), F. B. M. Lutyens (Rev. F. de W. Lushington, Elstree), C. E. M. Pickthorn (Victoria College, Bath), and F. W. A. Watt (Mr. W. A. Walker, Upcott House, Okehampton).

Bangor University College.—Isaac Roberts Scholarships: £50 (renewed for second year), Muriel G. Edwards, B.Sc.; £50 (first year, renewable), Thomas Thomson. Osborne Morgan Scholarships: £43. 10s. (second year), Nesta Thomas; £43. 10s. (first year, renewable), Kate W. Roberts. Dean Edwards Prize, £29. 12s., John R. Jones. R. A. Jones Prize, £17. 17s. (Mathematics), Robert Jones. Eyton Williams Scholarships and Prizes: Third Year Students, Exhibitions: £15, Harold G. Morgan and Marian Jones; £10, Mabel Evans, Kathleen Gilman, and Harold Thomas; prizes of £5, T. Vincent Davies, John Edwards, Maude M. Jarvis and Letitia J. Thomas. Second Year Students, Exhibitions: £15 (raised to £20), Margaret E. Hewitt; £10, D. E. Evans, W. O. Hughes, and John Jones. John Hughes Scholarships: £30, D. Morris Jones, B.A.; £10, W. H. Gray, R. J. Pritchard, and D. R. Swaine. Day Training Students of First Year: Exhibition, £7. 10s., W. J. Hughes and Fred Roberts; awards of £5, Mary Davies, Martha J. Roberts, and Enid Davies. Agricultural Students: Exhibitions of £10, J. W. Griffiths and A. F. Williams. William Griffith Prize: Thomas Thomson. Jones-Morris Memorial Prize: Leslie W. Jones. Modern Language Exhibitions of £10 (to attend vacation courses abroad): Margaret E. Hewitt and J. Helen Rowlands.

British Empire League.—Duke of Devonshire Prize, 20 guineas, for best Essay on an Imperial subject (open to twenty-seven of the principal public schools of the United Kingdom): L. F. Urwick, Repton School.

Bromsgrove School.—School Scholarships: A. M. F. Dewdney (Plymouth College); W. H. Ingrams (Mr. Drew, Shrewsbury); E. P. Mackay (Miss Pacey, Southport); A. S. Travers (Mr. Stoney, Monkstown); G. C. Barnard (Mr. Gurney, Cheltenham). School Exhibition: R. F. H. Browne (St. Michael's, Tenbury).

Cambridge: Girton College.—Gilchrist Fellowship of £100: Miss E. E. Power (History Tripos, Part I, 1909, Class I; Part II, 1909 Class I). Pfeiffer Studentship of about £75: Miss M. Long (Mathematical Tripos, Part I, 1908, equal to Fourth Wrangler; Part II, 1909, Class I, Div. 2). Cairnes Scholarships of about £65 each: Miss M. D. Gordon (History Tripos, 1899, Class I) and Miss A. Shillington (Classical Tripos, Part I, 1907, Class I, Div. 3; Part II, 1908, Class I). Studentship of £40: Miss I. M. Massey (Medieval and Modern Languages Tripos, 1908, Class I, with distinction in French and German, 1909, Class II). A Fourth Year Scholarship of £40: Miss A. B. D. Finney (Mathematical Tripos, Part I, 1909, New Regulations; Class I, Part II, 1910, New Regulations, Wrangler). Sir Arthur Arnold Scholarship of £30: Miss P. B. Mudie-Cooke (Classical Tripos, Part I, 1910, Class I, Div. 3). Fourth Year Scholarship of £20: Miss A. K. Kinross (Medieval and Modern Languages Tripos, 1910, Class I). Therese Montefiore Memorial Prize, about £64: Miss M. Seaton (Medieval and Modern Languages Tripos, 1909, Class I, with distinction in French, 1910, Class I). Agnata Butler Prizes for Classics: third year, Miss P. B. Mudie-Cooke; second year, Miss E. M. Steuart (Inter-Collegiate Examination, 1910, Class I). Fanny Metcalfe Memorial Prize for Medieval and Modern Languages: Miss F. E. Harmer (Inter-Collegiate Examination, 1910, Class I). Pioneers Prize for History: Miss E. E. Power. Charity Reeves Prize for English: Miss A. K. Kinross. Organ Scholarship of £50 for three years (offered by Mr. Sedley Taylor): Miss E. M. Payne, High School, Winchester, and Hartley University College.

Cambridge University.—Prize of £50 (Gordon Wigan Fund) for Research in Chemistry: John Thomas, B.A., Trinity. Frank Smart Prizes: Botany, A. J. Wilmott, B.A., St. John's; Zoology, J. T. Saunders, Christ's. Squire Scholarships in Law: H. Hands, Downing; Arthur P. Bunt, St. John's; R. D. Scholfield. Tiarks German Scholarship, £150 for one year: Gilbert Waterhouse, B.A., St. John's.

Corpus Christi.—Fellowship: G. G. G. Butler, B.A., Scholar of Trinity.

Emmanuel.—Mr. R. M. Dawkins, Director of the British School at Athens, has been elected to a Senior Fellowship. Scholarship, £40 (with Exhibition, £10): R. H. Crooke, B.A.

Trinity.—Fellowship and Lectureship in History: J. W. Reynolds, B.A., Scholar of Trinity, and formerly Earl of Derby student.

Dover College.—Scholarships: L. A. G. Strong (Mr. F. R. Saberton, Plymouth), A. W. Walmsley (Mr. A. H. Raikes, Windermere), J. N. Gale (Dover College), S. N. King (Dover College Junior School), F. W. Mathew (Mr. E. M. Jackson, Dovercourt), F. J. Biddulph (Rev. H. C. L. Tindall, Ore), R. J. Darvall (Mr. E. M. Fletcher, Reading), T. W. Quartley (Rev. M. Knowles, Southwold), and A. V. A. Mercier (Dover College). Exhibitions: A. Beacall (Mr. C. E. Cherrill, Haverstock Hill), G. M. Moore (Mr. E. T. Cherton, West Kirby), L. Cowie (Rev. J. F. Johnson, Chislehurst), and G. D. Robinson (Rev. S. Shilcock, Kenley).

Durham University.—Open Scholarship in Classics (£70 a year): Miss Mary McLarty, St. George's School, Harpenden, Herts.

Edinburgh: Heriot's Trust.—Numerous School Bursaries, tenable three years, were awarded. Bursaries of £30, tenable four years, at any University or Day Technical School: James C. Howie, Harold S. E. Stevens, Ernest Ian Douglas, James W. Potter, and R. S. Brydon. Travelling Scholarship, £75 a year for two years: David Low.

Edinburgh University.—Vans Dunlop Scholarship in Mathematics (£100 a year for three years): J. G. Gibson, M.A. Vans Dunlop Scholarship in Natural Philosophy (£100 a year for three years): R. G. Harris, M.A. Bruce of Grangehill and Falkland Philosophical Scholarship (£100 a year for three years): A. C. Craig, M.A. Kirkpatrick Scholarship in History (£59 for one year): Edward Sawers and John Vivers, M.A., equal. Neil Arnott Scholarship in Experimental Physics (£35 for one year): W. Innes. Mackay Smith Scholarship in Natural Philosophy (£25 a year for two years): Hyman Levy and Andrew Nelson, equal. John Scott Travelling Scholarship (£38 for one year): Jessie A. Stewart, M.A. Lanfine Bursary in Scottish History (£35 a year for two years): John Vivers, M.A. Lanfine Bursary in English (£35 a year for two years): Catherine M. M'Lean. Fraser Bursary in Natural Philosophy (£51 for one year): W. W. M'Clelland. Newton Bursary in Natural Philosophy (£23 a year for two years): W. J. Carrie. Newton Bursary in Mathematics (£23 a year for two years): A. W. Young.

Eton College.—Foundation Scholarships: J. T. Godfrey, R. C. C. Binney, H. E. Russell, L. G. A. Cust, C. M. J. Villiers, A. Lubbock, the Hon. Y. A. Charteris, J. T. Matthey, J. S. Nichols, T. F. H. Fremantle, H. L. N. Dundas, C. J. S. Spriggc, P. L. Davies, R. H. S.

Spicer, R. S. W. Dickinson, T. R. Brown, A. P. F. Rhys-Davids, V. R. C. Dill, and R. W. W. Mendel.

Holt: Gresham's School (Fishmongers' Company). — Open £50 Scholarship: A. N. Bechmann (Peterborough Lodge, Finchley, N.W.) and A. Dane (Greshman's School). Norfolk County Scholarship, £30 (given by the Governors): H. C. Frost (Gresham's School) and A. K. Boning (Gresham's School). Exemption from tuition fees, given by the Governors: A. L. Sowerby and H. W. Clarke (both of Gresham's School).

Lancing College.—Scholarships (alphabetical order): A. G. Calthrop, J. E. Chalcraft, M. H. Ely, D. F. Ferguson, F. S. Heard, B. C. W. Martin, L. P. W. A. Mortimer, H. C. C. Newham, J. A. St. C. Richardson. Choral Scholar: W. J. Spurrell.

Liverpool University.—Fellowships—University Fellowship in Economics: Robert Alexander Macdonald. University Fellowship in History: Frederick James Routledge. Charles Beard Fellowship in History: Joseph Sidney Sleigh Dean. Oliver Lodge Fellowship: Charles Albert Sadler. Robert Gee Fellowship in Anatomy: Kenneth James Charles Bradshaw. Holt Fellowship in Physiology: Arthur Gruffudd William Owen. Holt Fellowship in Pathology: William Wright Mackarell. Alexander Fellowship in Pathology: David Moore Alexander. Thelwall Thomas Fellowship in Surgical Pathology: Richard Stopford Taylor. Johnston Colonial Fellowship: Vishnu Tatyaji Korke.

University Scholarships.—Modern Languages and Literatures: Henry Alexander. English Literature: Edith Birkhead and Helen S. Kermode. History: Dorothy M. Vaughan and Mary E. M. Jones. Physiology: Henry W. Jones. Law: Hubert J. B. Martin (on the results of the Honours LL.B. examination), Alan K. Speeden (at the end of second year), and William O. Williams (at the end of first year). Medicine: Joseph H. Mather.

Korbach Scholarship: Ellen M. Pool. Travelling Scholarships in Architecture: The Holt, Ernest Gee; the Ronald P. Jones, Ernest Prestwich; Scholarship offered by the British School at Rome, Ernest Prestwich. Isaac Roberts Scholarships: Physics, Joseph H. T. Roberts; Botany, Elsie M. Blackwell. Derby Scholarship in Mathematics: Joseph Proudman. 1851 Exhibition Scholarship: Arthur J. Allmand. Senior Lyon Jones Scholarship: Alfred D. Bigland. Derby Exhibition in Clinical Surgery: Tom W. Wadsworth. David Rew Memorial Scholarship: William Parry. Special Scholarship (for excellence of work in Final B. Eng. examination): Worsley Holttum. Studentships in Education: Mabel C. Cassady, George Grant, Vera Jones, and Ella MacMillan. Dawson Turner Prize: John H. Percy. Rathbone in Memoriam Prizes: Philosophy, James L. Armitage; English Literature, Dorothy M. Fieldsend; Economics, Elizabeth A. Parry. Oliver Lodge Prize: Arnold W. Gunstone and Joseph H. T. Roberts, equal. Ronald Hudson Prize: Joseph Proudman. Gee Prize (Diseases of Children): Ernest S. Miller. Burroughs Prizes: (1) Samuel F. Skellorn, (2) Leslie J. Ray. William Rathbone Medal: Sayed Fahmy. Kanthack Medals in Pathology: Robert Kennon and Hugh Pierce.

London, City and Guilds of, Institute.—The Diploma of Associate was awarded (July 20) to 50 matriculated third-year students of the Central Technical College in Civil and Mechanical Engineering, to 25 in Electrical Engineering, to 5 in Chemistry; and Certificates to 19 matriculated third-year students at the Central Technical College, and to 56 at the Technical College, Finsbury. Bramwell Medal (Civil and Mechanical Engineering), W. E. Bullock; Siemens Memorial Medal and Premium (Electrical Engineering), J. D. Peattie—both of the Central Technical College.

London: City of London School.—Sassoon Entrance Scholarship: C. R. Cleare. Corporation Entrance Scholarships: Classical Junior, R. N. Rednall and H. Goitein; Classical Senior, C. B. Oldman; Modern Junior, K. A. Whellock and A. J. Whittle: Science Senior, C. J. Thomas and A. R. Powell.

London: Merchant Taylors.—Entrance Scholarships: F. J. Stanger, Quernmore School, Bromley (Mr. G. Loly); E. H. Dowdell, Kensal Rise Council School (Mr. W. J. Dowdell); E. C. Perry, Leinster House School, Putney (Mr. G. P. Moyles); T. W. Steel, Frankfort House School, Bowes Park (Mr. W. H. Heathfield); and R. H. Burrows, Etchingham Park School (Miss E. Coatsworth).

London: North London Collegiate School.—Clothworkers' Leaving Scholarship, £50 a year for three years: Madeline Giles. Platt Scholarships, £20 each: Dorothy Sabin (Classics), Bertha Underwood (Mathematics), Ida Burnett (Science), and Olive Blair (English and History). On the results of the School Examination (Matriculation standard) there were awarded four Platt Scholarships of £20 each to Monica Curtis, Marjorie Muir, Mary Cross, and Margaret Firth; two Clothworkers' Scholarships, to Winifred Hamblett and Vera Isaac; the R. W. Buss Scholarship, to Joyce Lowe; and the Prance Scholarship, to Bessie L. Brown. On the results of the Junior School Examination of the University of London, the Crane Scholarship was awarded to Doris Grayfoot, and four Platt Scholarships of £10 each to Florence Mears, Marjorie Colman, Kathleen Lyon, and Doris Hillman. F. M. Buss Travelling Scholarship: Sophie Nicholls, M.A.

London University.—*University College*—Andrews Scholarships (Arts)—first year: M. Gollop (Classics), W. Strang (Modern Languages and History), G. B. Jeffrey (additional scholarship). Second year: Eileen O'Rourke. Bunnell Lewis Latin Prize (Verse Composition): T. J. Cash. Hollier Scholarship (Greek): G. F. Horsey. Malden Scholarship and Medal (Greek): Louise W. Stone. Morley Medal and Prize (English Literature): Gilbert Porteous. Early English Text Society's Prize for Languages: Winifred O. Hughes. L. M. Rothschild Prize (French): C. Gilli. Fielden Research Scholarship (German): Margaret A. Körner. Hermann Silver Medal (German): W. E. Collinson. Political Economy—Joseph Hume Scholarship, Gladys M. Broughton; Lloyd Scholarship, T. B. Russell. Joseph Hume Scholarship in Jurisprudence: W. McGuirk. J. S. Mill Scholarships (Philosophy and Logic): Nathalie Ertel and Saida James. Andrews Scholarships (Science)—first year: H. C. Reynard (Mathematics and Science). Science Scholarship awarded by the Commissioners of the Exhibition of 1851: E. N. da C. Andrade. Ellen Watson Memorial Scholarship in Applied Mathematics: R. G. Lunnon. Carey Foster Research Prize (Physics): A. H. Laurence. Physics Research Studentships: R. G. Lunnon and W. B. Haines. Tufnell Scholarship (Chemistry): R. W. Pope. Advanced Botany: Gold Medal, Gertrude M. Talbot. Quain Law Professor's Prize, M. O'Sullivan.

King's College for Women.—Gilchrist Scholarship in Home Science and Economics (Post-graduate): Enid Branson, Cambridge Natural Science Tripos.

Bedford College for Women. — Reid Fellowship, tenable two years: Miss H. L. M. Pixell, B.Sc. Lond., Demonstrator in Zoology at the College.

Royal Holloway College.—Scholarships of £60 for three years: A. D. Askew, English and History (Fulham Secondary School); A. J. M. Flewett, French and German (Blackheath High School); L. M. Swain, Mathematics (South Hampstead High School). Scholarships of £50 for three years: D. E. Amsden, History (Newcastle High School); C. E. Faithfull, Classics (Fulham Secondary School); G. Hinde, History (Kendal High School); M. E. Johnson, Chemistry, with credit for Pure Mathematics and Physics (Wheelwright Grammar School, Dewsbury); E. M. Robinson, Classics (Leeds High School); K. C. Smith, Mathematics (Lewisham Grammar School); M. E. Talbot, Botany and Chemistry, with credit for Pure Mathematics (Mary Datchelor School); A. R. Watson, Chemistry and Botany (Battersea Day Technical College); H. M. Williams, Classics (Liverpool College, Huyton). Scholarship of £45 for three years: A. I. G. Hewitt, English, with credit for History (Streatham College). *Proxime accesserunt* E. H. Shekleton, English, with credit for History (Dulwich High School); P. D. Cowell, French (Withington Girls' School); E. B. Thompson, History (Dulwich High School).

School of Economics. — Shaw Research Studentship (£105 for two years): William Kennedy, M.A. Glas. Hutchinson Medal for Research (History): George E. Uyehara.

Mill Hill.—Entrance Scholarships: W. A. Macfarlane, High School, West Hartlepool (£35 per annum); G. Facer, Kent College, Canterbury (£30 per annum); A. G. Ferguson, St. John's House, Hampstead (£25 per annum); F. A. Hawkins, Colet House, Rhyl (£15 per annum). Exhibitions open only to the sons of Christian ministers: A. G. Pearse, The Grammar School, Norwich.

Oxford University.—Theodore Williams Scholarships (£50 for two years): Human Anatomy, Arthur H. Southam, B.A., Christ Church. Physiology, Reginald St. A. Heathcote, Scholar of New College.—James William Squire Scholarships: Guy C. D. Hill, of Dean Close Memorial School, Cheltenham; John C. Poole, Exhibitioner of Keble College; and Hubert R. Higgs, of Oxford High School.

Satisfied the examiners in the Theory, History, and Practice of Education: Edward W. Channer, B.A., Worcester; Walter H. Edward, B.Sc., St. Catharine's College, Cambridge; George H. Gater, B.A., New College; Leonard H. Green, St. John's; Herbert R. Loads, B.A., non-coll.; Charles Mellows, B.A., Brasenose; Elsie D. Bland, Somerville College; Louisa F. Erskine, St. Mary's School, Wantage; Muriel F. Holiday, University Day Training College; and Evelyn C. Riley, National University of Ireland.

Diploma in Geography with distinction: Osbert G. S. Crawford, B.A., Keble College; Lavinia M. Hardy, Ethel F. Henson, and Charlotte A. Simpson, Society of Oxford Home Students. Diploma in Geography: Morley A. Dell, B.A., non-coll.; Harriet A. Hartley, B.A. Liverpool, Somerville College; Ginevra T. Henslow, Society of Oxford Home Students; Edith A. Johnson, Cherwell Hall and Society of Oxford Home Students; Phœbe J. Oxley, Society of Oxford Home Students. Certificate in Regional and Physical Geography: Harry Wallis, B.A., Hertford College. Certificate in Regional Geography: Edith M. Coulthard, Lille S. Loos, and Ellen Macdonald, Society of Oxford Home Students.

Gilchrist Fellowship (annually granted to the Association for the Education of Women in Oxford): Miss M. S. McFie, Society of Oxford Home Students.

Brasenose.—Open Scholarship in Natural Science: John Tasker Kewley, of Kingswood School, Bath.—Somerset Scholarship (open *pro hac vice*) in Natural Science: Alexander Leslie Munro, of the Oxford High School.

St. John's.—Wickes Divinity Exhibition, £60 a year: H. J. Davis, Northampton and County School.

Radley: St. Peter's College.—Scholarships (in alphabetical order): Blyth (Mr. Hollins, Eastbourne), Colchester (Mr. Nettleton, Folkestone), Morris (Mr. Sylvester, Godalming), Raikes (Mr. Lynam, Oxford), Slocock (Mr. Browne, Lambrook), Walker (Mr. Cooper, Scarborough), Worsfold (Mr. Paterson, Eastbourne). Exhibitions: Aked (Mr. Raikes, Windermere), Ferrier (Mr. Newton, Folkestone), Sheppard (Mr. Duckworth, Weston-super-Mare), Colman (Mr. Buckland, Laleham), Adams and Kemm (Dr. Williams, Summerfields), Troughton (Mr. Hinxman, Worthing).

Ramsgate: St. Lawrence College (formerly South-Eastern College). —Entrance Scholarships: E. C. S. Wade (St. Faith's, Cambridge), £75; R. C. Constable, £50: M. M. Milne-Thomson (Wykeham Hall, Lee-on-Solent), £25; J. C. Thomson (C.M.S. Home, Limpsfield), £20. Exhibitions: H. G. Selwyn (St. Clare, Walmer), C. B. Campbell (Harrow View, Ealing), E. Jary (Highfield School, Liphook); R. J. Darvall (Marlborough House, Reading), B. G. Whitfield (St. Lawrence Junior School), and J. B. Taylor (St. George's, Herne Bay).

Sheffield University.—Science Research Scholarship of Royal Commissioners for Exhibition of 1851: Ernest W. Merry, M.Sc.

Sherborne School.—Entrance Scholarships and Exhibitions: R. B. W. Vinter (Sherborne School), N. A. Beehmann (Mr. A. H. Lindford, Peterborough Lodge, Finchley Road), E. J. Bolton (Messrs. Cherrill and Whitaker, Upton School, Haverstock Hill), O. K. Struckmeyer (Sherborne School), M. P. Bennett (Mr. L. C. Powys, Sherborne Preparatory School), V. T. Bayly (Mr. W. A. Walker, Upcott House, Okehampton), W. E. Beckett (Mr. T. A. Wise, Oakfield, Rugby).

Tunbridge Wells: Skinners' Company's Grammar School. — Hunt and Atwell Exhibition: G. M. Pickett. Skinners' Scholarship: H. B. Pegrum and E. W. Tyson. Senior Foundation Scholarship: E. R. Ruffell. Junior Foundation Scholarship: J. M. Wall. Atwell Scholarship: F. Arthur and T. Simmons.

Westminster School.—On the results of the recent challenge the following candidates are recommended to the governing body:—(1) For election to college: R. S. Browning and F. E. D. Hodges (Rev. H. W. Waterfield, Temple Grove, Eastbourne), O. L. C. Sibley (Westminster School), R. R. Turner (Rev. H. W. Waterfield, Temple Grove, Eastbourne), M. A. Thompson (Horsham Grammar School), A. C. Kermode (Mr. Lynam, Oxford), C. Munro-Faure (Rev. F. de W. Lushington, Elstree), A. N. Charlton (Westminster School). (2) For non-resident scholarships: Q. C. D. Bovey and R. W. Stannard (Westminster School), L. H. Chidson (Streatham Grammar School), A. S. Macpherson and A. G. Pite (Westminster School). (3) For exhibitions: £30, H. L. Helsdon (Messrs. Cherrill and Whitaker, Upton School, Haverstock Hill, N.W.); £20, A. C. T. Perkins (Mr. Gladstone, Cliveden Place); £20, G. R. D. Gee and G. H. Humphreys (Westminster School); honorary, L. Imroth (Mr. Grenfell, Hampstead Heath).

Worcester: King's School.—Entrance Scholarships: F. D. Keyworth, L. Haines, F. J. Hemming, and Hon. C. E. Davenport.

THE EDUCATIONAL VALUE OF HUMOUR.

By Stephen S. Colvin, University of Illinois.

[From the *Pedagogical Seminary*.]

One of the most striking characteristics of the English miracle and morality plays is the mingling of the sublime and the ridiculous. To us of to-day such a mixture seems incongruous in the extreme, and yet may it not be that the incongruity is in us rather than in the play? It is a characteristic of the literature of cruder times to blend these two seemingly opposite elements, and it is a mark of the greatest literature of all ages to do so as well. Homer and Shakespeare and Balzac, not to mention a score of other great writers, attest the fact that there is a true kinship between humour and the most exalted passions of the human heart. The untutored man feels it, the genius expresses it, but we, alas, of the middle plane have failed to recognize the fundamental truth. So it happens that common sense and psychology alike give but scant recognition to this part of our conscious life.

Emotional Nature of Humour.

Doubtless this neglect is to be explained in part by the fact that humour is commonly considered an unimportant element in the practical business of the world, and partly because its subtle nature makes an analysis unusually difficult and unsatisfactory. It seems safe to assume at the outset, however, that humour is to be classed among the emotions. It contains unmistakable elements of organic bodily changes, varying greatly in intensity as they accompany uproarious mirth or delicate satire and word play; it possesses also a distinct perceptual phase, more marked in the higher manifestations of humour than in the majority of emotions, giving it often so predominatingly an intellectual cast as to obscure its rich affective basis; and finally, like all other emotions, it expresses itself in an attitude toward the object that has called forth the humorous experience. Hence a complete discussion of humour should include, first, an outline of those elements of perception that constitute the intellectual phases of the emotion; second, an analysis of those bodily changes that accompany its manifestation, and, third, a description of those acts that express its attitude toward its object. The present discussion, while recognizing the importance of these various aspects will, however, limit itself for the most part to the first, since it is in relation to the perception of humour that the principal educational interest in the emotion arises.

Bodily Effects or Accompaniments.

It may be said in passing that Sully, in his "Essay on Laughter," has described at some length the organic changes accompanying hearty laughter (often an expression of the humorous emotion), as have also J. R. Angell and H. B. Thompson in an article in the *Psychological Review*, and it may not be without interest to note that in laughter there is a pronounced effect on the circulation, while the general activity of the organism is heightened, making the more explosive types of humour, at least, feelings of euphoria. It is true that in the higher types of humour (and to these alone the name is most commonly applied) explosive laughter is entirely lacking, yet there are doubtless in all humorous experiences certain tendencies, however mild, toward laughter, be they nothing more than the smile of quiet appreciation. Hence it is not unwarranted to assume that organic changes, though in a greatly modified degree, are to be found in the more subtle forms of humour as well as in its cruder expressions. Humour, then, is a pleasurable affective state, and for purely physiological reasons, if for no others, it should be cultivated.

Perceptual Phase.

If we turn to a consideration of the intellectual aspect of humour, we are at once confronted with the difficulty of giving an exact characterization of the emotion in terms of perception. We find, for example, Hobbes defining the ludicrous as a conception of superiority and degradation. He says, "the passion of laughter is nothing else but sudden glory arising from a sudden conception of some eminency in ourselves, by comparison with the inferiority of others, or with our own formerly." He then makes the chief element in the emotion egoistic, basing its existence on pride and love of power, thus bringing its conception of humour into accord with his general philosophic theory. Aristotle, too, finds in the ludicrous something base and unworthy, the rejoicing at another's misfortunes, the perception of a defect or ugliness. This general point of view, with certain modifications, is shared by Prof. Bain, who, however, does not consider as necessary the egoistic element in the emotion. Another prominent theory is that expressed by Kant, Schopenhauer, and Lipps, among others, who hold that the essential element in all humour is a recognition of incongruity.

While neither of these theories is adequate fully to set forth the nature of humour, the second seems to have a far greater merit. I believe it would be quite impossible to show that all humorous situations exhibit relations of degradation and superiority, and, further, the extreme view set forth by Hobbes, which makes the emotion essentially egoistic, is clearly without justification. This merit, however, exists in Hobbes's theory —namely, that it emphasizes the suddenness of the perception. Sluggish intellects and dull wits cannot grasp an amusing situation. The perception of humour is a sure indication of mental alertness, and here we find an element of significance for education.

On the other hand, I believe it quite within the powers of analysis to make clear that all forms of the comic, the humorous and witty, have in them suggestions of the strange, the unexpected, the absurd, the incongruous, the mal-proportioned.

The Humorous Standpoint.

If we grant that this is the case, however, we must not suppose that the sense of strangeness or incongruity in itself is sufficient to make a humorous situation. To this must always be added the feeling of personal disinterestedness (accompanied by a distinctly pleasurable experience). An object or event to be really humorous must be so in itself, and not because of any relation to the well-being of the person who experiences the emotion. In this respect humour closely relates itself to the æsthetic sense, which likewise, as Schopenhauer has pointed out and Münsterberg has affirmed, must be entirely free from

personal interest to be genuine. The individual who can laugh at the mishaps of another, but finds nothing humorous in his own trivial misfortunes, must raise a suspicion as to the genuineness of his sense of humour. We may safely go so far as to say (paraphrasing the words of Kant in regard to our moral life): "The direct opposite of the principle of humour is, when the principle of private happiness is made the determining principle of this emotion."

Closely connected with this feeling of disinterestedness is the fact that humour extends the sympathies. The self-centred individual can never so divorce himself from a situation as to treat it from a genuinely humorous standpoint. The practical life and the life of mirth exclude each other absolutely. Hence the brute can no more feel the humour of the situation than he can have an intimation of its ethical significance, its artistic exaltation, or its religious sublimity.

Yet, on the other hand, the individual cannot be in a state of marked inferiority and dependence in relation to the object that he finds humorous. This, of course, does not mean that, in the perception of ludicrous relations, there may not be one term of great exaltation and the other of weakness, baseness, or insignificance—as, for example, when some petty being sets himself against an overshadowing power; but it does mean that the person who stands in the inferior relation cannot realize the humour in it, unless, perchance, he is able to view this relation from the standpoint of the superior power, thus transcending his own insignificance. Here the humorous emotion runs exactly counter to the religious, where a feeling of absolute dependence is characteristic of its most profound expressions. Solemnity is always a foe to laughter, and tyrants and school teachers tremble at the manifestations of mirth—the surest indications that they are no longer taken seriously and that their fall is at hand. In this connexion Sully says that laughter is feared by those "who hold imposing rank or office and have the daily concern of maintaining a proper awe in others." To laugh at the gods is to depose them. Of all human weaknesses attributed by Homer to the Olympian deities, those qualities which made them the subjects of mirth were the most dangerous to their divinity.

Activity of Mind Implied.

Another characteristic of the sense for the humorous which is important for our purpose to notice is that it involves a relational activity of the mind. The dull person, as has already been said, and the merely emotional person are both incapable of really experiencing the delicious sense of the ludicrous because both are incapable of forming subtle and far-reaching associations on which the higher forms of humour so much depend.

To be aware of incongruities implies an intellect of considerable activity. Even surprise is an indication of mind. It is a well known fact that a considerable period must elapse in the life of the infant before he can find any situation surprising. What is true of the child here is also true of the race. In this connexion Herbert Spencer remarks, in his autobiography: "Surprise and curiosity are not the traits of the utterly ignorant, as they are commonly supposed to be, but of the partially cultured. . . . He (primitive man) does not concern himself about them (great natural changes) any further than as they affect satisfaction of his material needs." Such a mind evidently would possess little capacity for humour even of the crudest type.

The Social Value of Humour.

Beside being of a disinterested nature and possessing a broad intellectual basis, the sense of humour has, as Sully points out, a social value. It binds those of common taste together, but is the foe of the barbarian and the stranger. It is opposed to vice, for vice is folly, and folly is ludicrous. Because of this, satire has been one of the most valuable instruments in social reform. Many a man is willing to be known as a knave, but few indeed relish the rôle of the fool. "The fear of becoming ridiculous," says Sully, "is a valuable side support of what we call moderation."

In its highest expressions humour becomes a philosophy. Its disinterested character raises it above the view of the crowd, frees it from the trammels of the present, and allows a prospect of the universe *sub specie aeternitatis*. The quiet smile, free from contempt and tinged with pity, which the face of the philosopher wears, is expressive of a mind that, while sympathizing with the shams of life, has seen through them and has realized, not with bitterness and scorn, but with deep comprehension and tenderness, the trivial character of mere human strivings. The true philosopher is neither an optimist nor a pessimist—he is a humorist.

Humour an an End in Education.

Enough has been said of the far-reaching importance of humour in our intellectual, moral, social, and contemplative life to justify it as an end in education. Its possession means intellectual acumen and breadth, a sense of ethical values, and exalted spirit. To educate in humour is to furnish a liberal training, to humanize. The teacher can have no higher ideal than that of teaching his pupils to laugh aright; for he who laughs well laughs wisely, laughs magnanimously, laughs highly. He who laughs well has knowledge, sympathy, and philosophic calm. His faculties are balanced and his soul at peace. The tittering schoolgirl and the boisterous youth should be purged of their follies. They have learned to laugh, but how unwisely! The sober-faced "school-marm" fears their shallow mirth, as, indeed, she should; but she should recognize that she cannot escape it by banishing all fun, however trivial and vulgar, from the lives of her pupils, but by reforming their sense of humour; then it will become her ally and no longer remain her foe. It is high time that the unnatural seriousness of the schoolroom should be at an end. The best school government must be that which makes some concessions to child nature. The average boy and girl have, I believe, a fund of crude humour. Yet the school goes on ignoring this truth until most pupils imagine that all thoughts of fun should be abandoned on entering the schoolhouse. This fact was brought to my mind rather strikingly on one occasion by a question asked by one of the boys, when a set of compositions, all on humorous topics, was assigned to a group of high-school children. "How can we," he asked, "write on these subjects; can we say anything funny?" I really think the pupil imagined it was little short of a crime to introduce a bit of humour into his school work, and I fancy his conclusions were drawn with some degree of logic.

Training in Humour.

We have long been striving in our schools for subjects that would best prepare the pupil for the battle of life. We have mathematics and foreign language to give rational power, Nature study to strengthen observation and accuracy of description, literature to teach humanity, and history to promote good citizenship. Yet the opponents of formal discipline tell us, and perhaps with justice, that we fail for the most part to attain our aim, since we cannot train the intellect as a whole, but only in definite directions. I venture to assert, however, that a training in the perception and enjoyment of humour would do much to equip the individual with a mind many-sided to meet the many caprices of fortune with intelligence, fortitude, humanity, and, if need be, with resignation.

In this training literature has a part of the greatest importance to play, but I fear that it is far too seldom utilized. What a store of treasure there is drawn from all ages and peoples! Are there not Homer and Aristophanes, Chaucer and Shakespeare, Molière and Rabelais and Cervantes, Sterne and Fielding and Burns, Balzac and George Eliot? All great writers have felt in some degree the power of humour, yet how seldom has this side of their writings been fully comprehended.

Education in humour is not alone a matter for the schools, yet it should begin in the schools. It has often been said that children are lacking in humour. This, I am sure, is untrue, unless we are to understand by this statement that their notions of humour are crude and inadequate. So, too, are their logical powers deficient, and their moral judgments narrow, their æsthetic sensibilities crude, and their religious instincts savage. Observation and experiment disclose unmistakable evidence of the existence of the sense of humour in very young children and of its evolution from a lower to a higher stage. The cruder elements find their expression in a fondness for the absurd and strange in teasing and bullying, in tricks and practical jokes. The higher elements show themselves in unexpected turns of thought, such as stories with a point, repartee, quaint sayings and epigrammatic statements, but these more subtle elements are far outbalanced by the grosser. It is further clearly evident that, though there is a gradual growth in the humorous elements, it by no means keeps pace with the growth of other important elements in the child's mental evolution, a fact to be explained largely, I believe, on the ground that humour has never been seriously considered as worthy of cultivation on the part of teachers and educators in general.

The First and Lowest Type.

The crudest of all elements entering into humour is, without doubt, the teasing and bullying instinct, common to both sexes, but particularly exhibited by boys. So obscured is the genuinely ludicrous element in this tendency that it is often difficult to distinguish it from a similar instinct to be found in the brute. Here the "sudden-glory theory" of Hobbes may seem to find support, but I am inclined to believe that in the proportion in which a love of power and a feeling of superiority manifest themselves in this instinct, to just that extent is the germ of humour lacking. The playing of practical jokes, the "calling of names," the various physical tortures that annoy the victim of this sort of play activity, possess humorous attributes only in so far as they exhibit incongruities. That this first and lowest type of humour, however, finds a large place still in the estimation not only of children, but of "grown-ups" as well, the comic supplement of our Sunday papers and the programmes of our vaudeville theatres abundantly attest. This is what the famous clown, "Silvers Oakley," says in regard to the humour of the crowd, as reported in a recent issue of an American daily:

When I get through my work I feel as if I'd been playing centre scrimmage against Yale. If people only would laugh at something nice and kind and gentle! But no! We have to kick and get kicked, punch and get punched, get up, fall down, roll around, and get generally walked all over, trampled under and hoofed up, to make any sort of a hit at all. Well, honest now, I had a partner that got only one good laugh all the time he was in the business, and that was when an elephant stepped on his foot and smashed it flat. He set up a screech that slit the tent-top pretty near, and they laughed! Gee! you should have heard them laugh! When we carried him out, groaning and biting his fingers, they almost had a fit.

It is the crude instinct that education should utilize in order to transcend it and attain higher levels. To ignore it or to attempt to eradicate it without substitution is to cut off all hope of developing a real sense of humour. We can reach the mountain tops only by first traversing the plain and the foothills.

The Universal Play Instinct.

Closely connected with the humour existing in the rough horseplay we have just been discussing is the ludicrous side to play in general. It seems quite possible to regard humour as originating in the universal play instinct, of which teasing and bullying may be regarded as a special type. Significant in this connexion are the words of Groos, who, in preparing his great work on "The Play of Animals," consulted a mass of literature from all sources. "I have examined many books of travel," he writes, "but usually with discouraging results. If they refer to the play of animals at all, the most they say is that it was 'amusing' or 'astonishing' or 'droll' or exceedingly 'funny.'"

For the savage and the child everything that is new and strange is greeted either with signs of fear or with laughter. The peculiar dress and the language of the rustic and farmer are still stock elements in the comedy which delights the crowd. Once more we find genuine humour mingled with much that is undesirable; for to evince mirth at strange manners or customs is a mark of provincialism, and is not, on the whole, to be encouraged. Here, again, the progress of education from the lower to the higher forms of humour is not by elimination, but by substitution.

The True Educational Value of Humour.

The higher types of humour which depend on sympathy must come in to take the place of these cruder instincts, and when this is accomplished the true educational value of humour is seen. It becomes then as broadly humanizing as is morality or art or religion. It then takes its proper place among those forces which combat the mere animal tendencies of struggle and strife, of self-aggrandisement at the expense of others. It, too, makes for the "sweetness and light"; it, too, transmutes the biological laws of the struggle for existence, and the survival of the fittest from base metal into noble coin; it, too, has seen the horizon from the mountain tops and cannot dwell content within the confining narrowness of the valleys. No one can be both humorist and egoist in the same breath. No one who has a sense of the ludicrous can believe his own little affairs of supreme importance. It is a significant fact that Napoleon had no sense of humour. Like many a less gifted person, he took himself all too seriously and he met defeat. We are all familiar with the representative of that modern type of humanity—the product of "up-to-date" Americanism, who "does things," but in the doing forgets there is a world outside his own sphere of activity; who has no time for book or friends or worship or art; who knows no language but that of the shop; who, in the mad rush for fame or power or fortune, has no leisure for the higher things. He is in need of culture, and I know of no culture more beneficial than that which would enable him to see his true relation to the world under the guise of humour. Humour furnishes a vacation from seriousness—a vacation that the present age sadly needs. Not that activity and struggle should cease, but that they should be given their proper place and their just proportion. This an education in humour should accomplish, and thus the Greek virtue of *sophrosune* may be made a part of our lives.

THE SCHOOLMASTER AS HERO.

It has rarely been the lot of a member of our profession to figure as the hero of a novel. Schoolboy heroes there have been in abundance, from "Tom Brown" down to "Eric." In a sense, Dr. Arnold is the real hero of "Tom Brown," but the titular hero and the Diomedes and Ajaxes are boys. Biography has been just to schoolmasters, but the halo of romance is lacking. As Chiron, the first and most famous member of our profession says to Faust,

Selbst Pallas kommt als Mentor nicht zu Ehren.

It is encouraging, therefore, to turn to the great master of modern English fiction for an exception to the rule. Matthew Weyburn, the hero of "Lord Ormont and his Aminta," is an enthusiastic schoolmaster, of an unconventional type indeed, and Meredith has entered heartily into his point of view. The future schoolmaster, the orphan son of an officer, begins as a schoolboy with an instinct for leadership.

Where he did such good work was in sharpening the fellows to excel. He kept them to the grindstone, so that they had no time for rusty brooding; and it was not done by exhortations off a pedestal, like St. Paul at the Athenians, it breathed out of him every day of the week. He carried a light for followers. Whatever he demanded of them, he himself did it easily. He would say to boys, "You're going to be men."

His boyish admiration was Lord Ormont, a dashing cavalry officer, only half appreciated by his countrymen. His defence of his hero in controversy with one of the masters, who pitted Murat against him, and his captaincy in a snow-fight are the chief incidents of his school career. There was also a schoolboy attachment to a schoolgirl, which plays an important part in the story. At the age of twenty-six Weyburn finds himself as tutor for a short time in the house of a sister of Lord Ormont. To her he defends his choice of the tutor's profession. "Think you understand boys?" says the lady. He replies: "One gets to interpret by degrees, by observing their habits." He then becomes secretary to Lord Ormont, who has married his boyish love. To her he relates his reasons for adopting his profession in preference to the army. They are talking of a common acquaintance, a schoolfellow of Weyburn's.

"I can hardly understand a young Frenchman's not entering the army," she said.

"The Napoleonic legend is weaker now," said he.

"The son of an officer!"

"Grandson."

"It was his choice to be—he gave it up without reluctance?"

"Emile obeyed the command of his parents," Weyburn answered; and he was obedient to the veiled direction of her remark, in speaking of himself: "I had a reason too."

"One wonders!"

"It would have impoverished my mother's income to put aside a small allowance for me for years. She would not have hesitated. I then set my mind on the profession of schoolmaster."

"Emile Grenat was a brave boy. Has he no regrets?"

"Neither of us has a regret."

"He began ambitiously."

"It's the way at the beginning."

"It is not usually abjured."

"I'm afraid we neither of us 'dignify our calling' by discontent with it!"

A dusky flush, worth seeing, came on her cheeks. "I respect enthusiasm," she said, and it was as good to him to hear as the begging

pardon, though clearly she could not understand enthusiasm for the schoolmaster's career.

Light of evidence was before him that she had a friendly curiosity to know what things had led to their new meeting under these conditions. He sketched them cursorily; there was little to tell—little, that is, appealing to a romantic mind for interest. He felt her disillusionment, felt with it and spread a feast of it. She had to hear of studies at Caen and at a Paris *lycée;* French fairly mastered; German, the same; Italian, the same; after studies at Heidelberg, Asti, and Florence; between four and five months at Athens (he was needlessly precise), in tutorship with a young nobleman: no events, nor a spot of colour. Thus did he wilfully, with pain to himself, put an extinguisher on the youth painted brilliant and eminent in a maiden's imagination.

A further confidence is interesting. The lady says:

"I should like to know whether an idea I have is true: Is much, I mean constant, looking down on young people likely to pull one's mind down to their level?"

"Likely enough to betray our level, if there's danger," he murmured. "Society offers an example that your conjecture is not unfounded, Lady Ormont. But if we have great literature and an interest in the world's affairs, can there be any fear of it? The schoolmaster ploughs to make a richer world, I hope. He must live with them, join with them in their games, accustom them to have their heads knocked with what he wants to get into them, leading them all the while, as the bigger schoolfellow does, if he is a good fellow. He has to be careful not to smell of his office. Doing positive good is the business of his every day—on a small scale, but it's positive, if he likes his boys. Avaunt favouritism!—he must like all boys. And it's human nature not so far removed from the dog; only it's a supple human nature: there's the beauty of it. We train it. Nothing is more certain than that it will grow upward. I have the belief that I shall succeed, because I like boys and they like me. It always was the case."

And again:

"And, besides, parents see I look forward. I do hope good for the world. If at my school we have all nationalities (French boys and German, Italian, Russian, Spaniard, without distinction of race and religion and station, and with English intermixing (English games, English sense of honour, and conception of gentlemen), we shall help to nationalize Europe. Emile Grenat, Adolf Fleischer, and an Italian, Vincentino Chiuse, are prepared to start with me; and they are men of attainments; they will throw up their positions; they will do me the honour to trust to my leadership."

The school in Switzerland becomes a reality. An old pupil, a young Italian soldier, tells the story of its inner life:

I was a sneak and a coward. It follows, I was a liar and a traitor. Who cured me of that vileness, that scandal? I will tell you—an Englishman and an Englishwoman: my schoolmaster and his wife. My schoolmaster—my friend! He is the comrade of his boys: English, French, Germans, Italians, a Spaniard in my time—a South American. I have sent him two from Boston, Massachusetts—and clever!—all emulous to excel, none boasting. . . . Enough; I sneaked, I lied. I let the blame fall on a schoolfellow and a housemaid. . . . It was not discovered, but my schoolfellow was unpunished, the housemaid remained in service; I thought, I thought, and I thought, until I could not look in my dear friend Matthew's face. He said to me one day: "Have you nothing to tell me, Giulio?" as if to ask the road to right or left. Out it all came. And no sermon, no! He set me the hardest task I could have. That was a penance!—to go to his wife and tell it all to her. Then I did think it an easier thing to go and face death, and death had been my nightmare. I went, she listened, she took my hand, she said: "You will never do this again, I know, Giulio." She told me no English girl would ever look on a man who was a coward and lied. From that day I have made Truth my bride. And what the consequence? I know not fear! I could laugh, knowing I was to lie down in my six-foot measure to-morrow. If I have done my duty and look in the face of my dear Matthew and his wife! Ah, those two! They are loved. They will be loved all over Europe. He works for Europe and America—all civilized people—to be one country. He is the comrade of his boys. Out of school hours it is Christian names all round—Matthew, Emile, Adolf, Emilio, Giulio, Robert, Marcel, Franz, &c. Games or lessons, a boy can't help learning with him. He makes happy fellows and brave soldiers of them without drill.

It is hardly necessary to add that Matthew's wife was his early love, separated, by no fault of her own, from her husband Lord Ormont; she became to Weyburn

A woman in her womanhood as great
As he was in his manhood.

The bulk of the book is filled up with the story of Lord Ormont, his wife, and his masterful sister, but the real protagonist is the young schoolmaster.

ASSISTANT MASTERS' SALARIES.

GERMAN AND ENGLISH.

The activity of the Assistant Masters in presenting their case for reforms is incessant and exemplary. Quite recently they issued a valuable volume of Continental inquiries; and on July 1 Mr. Fred Charles, the Chairman of their Association, set out in the columns of the *Morning Post* an instructive contrast of the salaries paid to teachers in the largest towns of England and of Germany, which is reproduced in the current issue of *A.M.A.* Mr. Charles makes the following general comments:

The comparison of the initial salaries is very much in favour of Germany; in three-quarters of the German towns the increments are equivalent to at least £10 per annum, while barely half the English towns have such increases. But it is in the final salaries that the greatest contrast is observed. In one German town the maximum is less than £300, and two others have two scales, the lower of which has a maximum of less than £300. In England, however, there are but two towns—London and Liverpool—in which the maximum is over £300.

There is a nearer approach to equality between the scales of London and Berlin than those of any other corresponding towns. The advantage is with Berlin; the salaries of all the *Oberlehrer* rise automatically to £360, plus rent allowance, which varies from £60 to £28, while in London comparatively few men can hope to reach £350. Liverpool and Hamburg present a greater contrast. The initial salaries are £150 and £200 respectively. Liverpool has no regular increments; those at Hamburg are equivalent to at least £10 a year; at Liverpool, probably very few teachers are in receipt of £400 a year; while at Hamburg the salaries of an *Oberlehrer* rise automatically to £450.

Throughout the comparison it has to be borne in mind that "in Germany the salaries of all the teachers concerned rise automatically to the maximum, while in England only a few teachers, holding the chief posts, receive the highest salaries." Moreover, there are the pensions: "in all the towns named teachers receive pensions of from 75 to 100 per cent. of salary, and in only four of the towns do the teachers contribute towards these pensions." Mr. Charles concludes that "our English conditions are such as to keep out of the schools many of the men best qualified, socially, intellectually, and morally, to train the youth of the country to maintain its reputation and position."

REVIEWS.

Roman History.

The Greatness and Decline of Rome. By Guglielmo Ferrero. Vols. III, IV, and V. Translated by the Rev. H. J. Chaytor, M.A., Head Master of Plymouth College. (6s. net each. Heinemann.)

The death of Caesar an accomplished fact, the conspirators found themselves without a definite programme of future action, while the aristocratic leaders were bewildered and ignorant of the bearings of events, the streets of Rome were in panic, and the attitude of the veterans and of the mob was undeclared. The author describes dramatically the uncertainties and vacillations of "three tumultuous days" (March 15, 16, and 17, B.C. 44), supporting his conclusions by a detailed critical examination of the authorities in an appendix. He will take no responsibility for Antony's oration over Caesar's body: Antony, on the contrary, "showed much adroitness in evading this difficult task." A month or so later, Antony and Octavianus are brought face to face, and now commence the characteristic difficulties of the volumes, arising out of the psychological interpretation of the chief performers in a drama of extreme complexity. As in the first two volumes, so here the general narrative is set forth lucidly and learnedly, often with minute critical details in footnotes; the social conditions are fully described in connexion with political developments; and the literary personages and their writings are appreciated. At the same time, able and scholarly as is the work throughout, it bears the marks of a certain perverseness of judgment—a tendency to seek originality through paradox, or by change of attitude regardless of what has gone before.

The portrait of Antony is fresh, wearing some new features that are very probably true, but dashed with perplexing transformations. Prof. Ferrero, admitting the ascendency of Cleopatra in varying degrees from time to time, diminishes materially the traditional infatuation of Antony, and places their relations

mainly on the footing of political business. The attitude of Cleopatra was this:

Doubtless Cleopatra used every means in her power to persuade Antony [to become King of Egypt by marriage with herself], but her project of marriage is not on that account to be regarded as a mere attempt at seduction. The plan was based upon a highly ingenious policy, most creditable to Cleopatra's intellectual power; she hoped by this marriage to save Egypt from the common fate of the other Mediterranean peoples, the fate of servitude to Rome. . . . The old and glorious monarchy of the Ptolemies was in its last agony. . . . Feeling her existence threatened, she thought of saving herself and Egypt at the same time by an alliance with Rome, and had attempted to secure this compact by a marriage with Caesar. When the plan failed she attempted to realize it by means of Antony; if he were King of Egypt, and if the Egyptian government could use the Roman legions, the independence of Egypt and Cleopatra's monarchy would be sheltered from all danger.

On the other hand, Antony's attitude was this:

Antony, to a much greater extent than Octavianus, was the pupil and political heir of Caesar. For the last six months of Caesar's life, while Octavianus had been in Apollonia, Antony had been the most intimate of the dictator's confidants at Rome; he had known his most secret thoughts and had seized his papers after his death, including the plans for the war which Caesar was preparing against Parthia. When the civil war was concluded, and Antony found himself master of unusual opportunities, what could be more natural than the idea of resuming the great projects conceived by the dictator during the stormy twilight of his life, projects of which he, perhaps, was the only man who knew the details? Among these projects, the Persian war necessarily seemed to him the most important. . . . The greatest difficulty before the enterprise was the want of money. . . . Egypt was still extremely rich. . . . The alliance with Egypt, as proposed by Cleopatra, could provide Antony with the necessary means for executing Caesar's great project.

Though "Cleopatra's plan was audacious and extraordinary in the extreme," it is not, we think, to be lightly cast aside; and it is certainly significant that, after passing the winter of 41–40 with her at Alexandria, Antony left her for three continuous years to attempt the conquest of Parthia (or Persia, as Prof. Ferrero calls it indiscriminately). The campaign was a failure. Prof. Ferrero marries Antony and Cleopatra in 36, and, naturally perhaps, thereafter finds the ascendency of Cleopatra over Antony increasing. For all that, Antony steadily keeps in view a second Parthian campaign, which he actually starts in 33, but is turned from it to face Octavianus. "He was by no means madly in love with the queen or bewitched by her." Actium was a politic sham, and "Antony was defeated in this supreme struggle, not by the valour of his adversary or by his own defective strategy or tactics, but by the hopeless inconsistency of his double-faced politics, which, while professing to be republican and Roman, was actually Egyptian and monarchical."

The character of Antony seems marred by inconsistency. Notwithstanding Caesar's opinion of his capacity, he needs the pressure of his wife and his brother Lucius to take a decisive line after Caesar's death. In the same paragraph he is "superficial" and yet working the plan of his first Parthian campaign "with his wonted capacity and energy." In spite of all the tokens of his political and military vigour from 36 onwards, just before the battle of Actium he is "now broken by age [little over fifty] and debauchery." In like manner, though Octavianus was "a prudent and almost a timid character" in October, 44, "every one was stupefied by his audacity" in November; and, if this audacity is explained by the supposition that he may have "felt sure of the help, or at least the approbation, of powerful personages," what of his haranguing the citizens at every street corner? If he was "weak and impressionable," "timid and hesitating, with no self-command in a dangerous crisis calling for immediate decision," it was well for him that "he none the less possessed real strength" and some "tenacity." Prof. Ferrero writes of him at the early age of twenty-three:

A monster incarnate, with all the hideous vices of a tyrant, cruelty, pride, luxury, and treachery, Octavianus was the abomination of Italy. Strange as the fact may seem in the case of a tyrant, he had some true friends. . . . He kept these men about his person and was willing to listen to their advice. What is still more extraordinary in the case of a tyrant, he would listen patiently to their remonstrances, would sometimes recognize his faults and promise amendment. Was this perversity the result of a nature incredibly bad or was it merely the ebullition of a sickly youth, spoiled by power and hardened by hate and fear? This was the great problem which the future was to solve.

All the historians have had difficulty in reconciling the earlier with the later character of Augustus; but none of them has made the task so difficult for himself as Prof. Ferrero. Octavianus cannot be easily exculpated of cruelty on occasion; but "monster incarnate" and "hideous vices of a tyrant" are hard terms, and the circumstances of the time call for some discrimination. How was it that this "abomination of Italy" "had attained his power with a rapidity unparalleled in Roman History"?

Prof. Ferrero gives large space to Cicero, whom he treats with tenderness and "regards, with Caesar, as the greatest figure in this great epoch of Roman history"—moved, perhaps, to some extent, by the consideration that Cicero "was the first statesman belonging to the intellectual class," the first of a dynasty that "for twenty centuries has never ceased to dominate Europe." But was Octavianus really guided by the "De Officiis" and the "De Republica"? In the fifth volume Tiberius is pictured consistently as a strong, self-contained, cautious man, "an aristocrat with a profound contempt for public opinion," and a prudent and capable general. The history ends at present with a comprehensive and able review of the Empire at the death of Augustus. In spite of all deductions for psychological and other deflections, the work is a most capable and interesting survey, learned, independent, and fruitfully suggestive and provocative.

The Cradle of European Civilization.

"Library of Living Thought."—*Crete the Forerunner of Greece.* By Charles Henry Hawes, M.A., Trinity College, Cambridge, and Harriet Boyd Hawes, M.A. (2s. 6d. net. Harper.)

Prov. A. J. Evans assures the reader that, under the guidance of Mr. and Mrs. Hawes, he "may safely trust himself to obtain an illuminative glimpse of the old Minoan world in its various aspects"—an assurance that will satisfy all reasonable people. Mr. Hawes, however, "by his anthropometric researches into both the ancient and modern inhabitants of Crete, has made far and away the most important contributions to our knowledge of their ethnic divisions and physical characteristics that have yet appeared"; and Mrs. Hawes, as Miss Harriet Boyd, "had herself carried out, in a manner which has won the approval of all competent judges, the excavation of an extensive Minoan settlement at Gournia." The importance of the subject appears in the fact that "the recent discoveries in Crete have added a new horizon to European civilization: a new standpoint has been at the same time obtained for surveying not only the Ancient Classical World of Greece and Rome, but the modern world in which we live." The value of the present compendium is enhanced by the extreme difficulty of gaining a comprehensive idea of the discoveries, owing to the complexity of the details, the multiplicity of the recent explorations, and the imperfect publication of the results attained.

Members of three foreign nations have worked in friendly rivalry to learn the buried history of Crete. At Knossos, Dr. Evans of Oxford has equalled Dr. Schliemann in good fortune and surpassed him in skill. Prof. Halbherr, of the University of Rome, has had parallel success at the palace sites of Phaestos and Aghia Triadha. At Gournia, Miss Harriet A. Boyd (now Mrs. Hawes), acting for the American Exploration Society of Philadelphia, has cleared the most complete pre-Hellenic town yet discovered. To the English record may be added the excavations of Mr. Hogarth at Psychro and Zakro, and of Mr. Bosanquet and Mr. Dawkins at Palaikastro; to the American credit, the less extensive, but richly productive, excavations of Mr. Seager at Vasiliki, Psyra, and Mokhlos. Goulas was given to the French, but was abandoned when M. Demargue failed to find the prehistoric city expected.

After a brief survey of the prehistoric periods of Crete, of the physical characteristics, dress, and homes of the Minoans and of their industries and commerce, our authors take us over the sites of these various excavations and show us what has been done and explain the significance of the results. Thereafter follow chapters on Minoan Art, Letters, and Religion, and on the relation of Crete to Greece in the process of civilization. "The Golden Age of Crete was the forerunner of the Golden Age of Greece, and hence all our Western culture." Needless to say, the whole story is of the highest interest and will appeal not only to classical students, but to intelligent readers generally.

Parallelism.

Theories of Parallelism. By William Barrett Frankland, M.A. (3s. net. Cambridge University Press.)

Doubtless the majority of advanced mathematical students of the present day are quite familiar with the phrase, "Non-Euclidean Geometry," but to many it is conceivable that the

phrase conveys little more than the superficial meaning indicated by the words of which it is composed. Those who desire to learn something more on the subject may read with profit and interest the Rev. W. B. Frankland's "Theories of Parallelism"—a small volume, indeed, but one whose production is the result of careful research and earnest thought. It constitutes a brief annotated historical survey of the trend of opinion on the fundamental theory of parallels as evidenced in the writings of many of the most noted mathematicians from the time of Euclid himself, three centuries before the Christian era, down to the close of the nineteenth century. It is possible to conceive that the future may have much that is definite to reveal on this important subject, but the uncertainty in which it has been involved in past time is not to be wondered at, when (as the author quotes from the "Letters and Reviews" of Gauss) a mathematician no less famous than Gauss declared, after earnest thought extending over considerably more than a quarter of a century that, though he had arrived at "much which most people would regard as proved" with regard to the hyperbolic hypothesis of two-dimensional space, his results were, in his own opinion, good for nothing so far as rigorous demonstration was concerned. There is a certain proportion of original work in Mr. Frankland's "Theories of Parallelism," but for the most part, save for thoughtful and valuable criticism, the writer has been content to collect and give in their chronological order the views of such men (to mention a few only) as Euclid, Ptolemy, Proclus, Wallis, Leibniz, Saccheri, Simson, Bertrand, Playfair, Laplace, Gauss, the Bolyais, &c., coming down to our own day.

The writer prefaces his suggestive little volume by an able introductory chapter, the contents of which are calculated to place the reader in a better position to estimate the just value of the various theories propounded in the subsequent chapters. Thus, for example, it is there shown that: "If two polygons are equal in *area*, when one can be dissected into triangles which can be placed together to cover the other exactly; and if, in the uncertainty (apart from prejudice) about the angle-sum of any triangle being exactly π, we define the *divergence* of a polygon having n sides to be the difference between its angle-sum and $(n-2)\pi$; then *the area of any polygon is proportional to its divergence*" (Hilbert). The positive, negative, or infinite value of the constant ratio for the plane considered gives rise to three hypotheses "*of equal rank*," namely, the elliptic, the hyperbolic, and the parabolic. Of these mutually exclusive hypotheses the last-named only is consistent with Euclidean geometry in its entirety. We must leave the reader to follow Mr. Frankland through the details of the pages of his volume; they will repay a close and careful reading.

GENERAL NOTICES.

MATHEMATICS.

A Course in Mathematics. Vol. II. By Frederick S. Woods and Frederick H. Bailey. (10s. 6d. Ginn.)

The completion of the course of instruction in mathematical subjects which the authors consider important, and indeed essential, for students of engineering. The earlier volume of the work was reviewed at some length in these columns; it is, therefore, merely necessary to note that the scheme of study suggested by the course is throughout uniform in character, the novelty of the text-book lying, as has been previously stated, in the arrangement rather than in the detailed treatment of the contents. The subject primarily receiving attention in the second volume is integration, together with some of its applications to mechanics and also in its close relation to the solution of differential equations. A study of functions of more than one variable follows. It is introduced and illustrated by the elements of solid geometry treated analytically, and this section of the treatise involves a fairly full discussion of partial differentiation and multiple integrals. Chapters on series and on complex numbers, and additional ones on differential equations, occupy the later portions of the second volume of the course. Careful diagrams, of which there are a number, are always helpful to the student.

Weighing and Measuring. By W. J. Dobbs, M.A. (2s. Methuen.)

A well written little volume, furnishing a course suitable for the senior classes of our secondary schools and embracing all the practical work demanded of candidates sitting for the Leaving Certificate and Army Qualifying Examinations. As a master in one of the well known public schools, the author has had special opportunities for learning just what is required in a text-book of the kind, and teachers and pupils will derive much benefit as a result of the writer's experience. To a great extent the volume consists of exercises, and, seeing that the previous knowledge of mathematics required by the reader is merely that of elementary arithmetic, algebra, and plane geometry, the number of students to whom the book will be valuable is very large. In addition to the text and exercises comprised in the body of the work, we note that a first appendix reprints the examination papers on Practical Measurements set by the Board of the Army Qualifying Examination, and that a second reproduces, in the form of a set of miscellaneous examples, many of the questions set by the Board of Education in its elementary science papers.

Pupil's Graph Arithmetic. By C. R. Cowen, A.C.P. (4d.) Answers Book, containing Hints on Solutions. (6d. net.) (E. J. Arnold—The "A.L." Series.)

Principally exercises, many of which are likely to awaken interest and show the practical utility of graphical methods. Some fully worked examples and a small quantity of explanatory text complete the little volume, which is neatly issued in pamphlet form. The answers are published separately and seem reliable.

SCIENCE.

Fossil Plants: a Text-book for Students of Botany and Geology. By A. C. Seward, M.A., F.R.S., Professor of Botany in the University, Fellow of St. John's College, and Honorary Fellow of Emmanuel College, Cambridge. Vol. II. (15s. net. Cambridge University Press.)

This volume has been long looked for; but the delay has not been altogether unfortunate, for there have been considerable advances in many parts of the subject-matter during the past ten years, and of these Prof. Seward has been able to take account. The subjects of the first volume have not been nearly so much affected by recent progress; but here and there the author indicates necessary modifications. If there is inequality of treatment of different genera, Prof. Seward is content to point to the magnitude of the field and the necessity for selection. He might also have pleaded the unequal abundance of material in different parts and on different aspects. The difficulties of decipherment of the geological record are often very great; but Prof. Seward tackles them frankly and strenuously. The contributions of other workers, home and foreign, are fully reckoned with, so that both historical and doctrinal development come to be noted and criticized. The treatment is, of course, severely technical, with no appeal to popular arts. There are 265 illustrations, many of them after drawings by Mrs. Seward. They are admirably reproduced. A third volume will complete this masterly work.

Theoretical Mechanics. By Percey F. Smith, Ph.D., Professor of Mathematics, and William Raymond Longley, Ph.D., Assistant Professor of Mathematics in the Sheffield Scientific School, Yale University. (10s. 6d. Ginn.)

The authors assume that the student has gone through a course of mathematics, including the calculus, and has secured a grip of general physics. "It should be emphasized, however, that the volume includes, for purposes of review, a discussion of the fundamental notions and many simple exercises involving these notions." Experience has led the authors to discard the conventional arrangement of treating statics first: "an obvious disadvantage existed in not taking up directly, upon the conclusion of the study of the integral calculus, the calculation of the integrals of mechanics, involving centres of gravity and moments of inertia," and this they now start with. They follow the sensible plan of restricting the discussion to a single problem at a time. The exposition is lucid, and a large number of well selected problems are provided for solution under the various sections. For the convenience of the students a list of elementary formulas is collected in the final chapter. A very capable and useful treatise.

Practical Electricity and Magnetism. A First Year's Course. By R. Elliot Steel, M.A., Sherborne School. (2s. Bell.)

The volume is written on the same lines as Mr. James Sinclair's excellent series of handbooks on "Practical Physics," and is intended as a companion to them. It consists of 114 experiments, with incidental explanations, and exercises and examination papers. The instructions are very simple and clear, and the treatment is thoroughly practical and modern. An excellent course.

ENGLISH LITERARY READERS.

"Cassell's Fairy Tales for Juniors." (6d. each volume, limp cloth.)

(1) *Cassell's New Fairy Book;* (2) *Fairy Tales in other Lands;* (3) *Reynard the Fox* (in words of one syllable)—these are the first arrivals of this engaging series. The old stories are plainly retold in simple form, with division into numbered paragraphs. The type is bold; there are numerous illustrations in colour and in black and white; and the get-up is attractive.

"The 'A. L.' Bright Story Readers." (E. J. Arnold.)

A recent batch of this excellent series contains the following books. Grade I: *Big Claus and Little Claus, and the Top and the Ball* (Andersen), prepared by W. H. Webster. (2d.)—Grade III: *The Water Babies* (Kingsley), prepared by the editor of the series (Mr. Alfonzo Gardiner). (3d.)—Grade V: *Round the World in Eighty Days* (Jules Verne), prepared by Jane Marion Gardiner. The matter is good and suitable for the various stages; the editing is conspicuously careful; and the type is generous. An admirable series.

"Stories Old and New: a New Junior Library." With Coloured Pictures. (9d. each volume. Blackie.)

We are all agreed that the reading habit ought to be acquired at school, and we have no mind to dispute the proposition at the basis of this new library that "the child ought, from the first, to be given *real* books, which may be handled with pleasure and kept with pride—books containing literature suited to its own age." The new series completes the scheme commenced by "The School and Home Library," which Messrs. Blackie have been publishing for some time back for older children. The first examples represent the three stages of the series: for children of 6 to 8, *Stories from Grimm;* for children of 7 to 9, *Tales of an Old New Tree*, by Hugh Laurence; for children of 8 to 10, *King Arthur and his Knights*, and *the Knights of Charlemagne*. "To secure simplicity and right gradation, the text has been prepared for this series by an experienced teacher." The stories are told simply and effectively. The type is excellent, and the get-up is agreeable. Each volume contains 128 pages of text with four coloured plates. A very attractive series, sure to fulfil its most useful object.

"McDougall's Silent Reading Series."

"In the higher classes," says the Code, "silent reading shall be the rule rather than the exception, and the scheme of instruction should include a wide course of reading under suitable guidance with the aim of creating a capacity for systematic study and a taste for good literature." This new series accordingly has two principal aims: to inculcate a love for good literature, and at the same time to train the scholar to read profitably by means of thoughtful questions on the subject matter. There is (1) *Robinson Crusoe* (Defoe) (8d. net, limp cloth). A table of contents indicates a division into twenty-one chapters, but no actual division is made in the text. (2) *The Cricket on the Hearth* (Dickens) (6d. net, limp cloth). The questions touch the main points: they are sufficiently exemplary. A useful series.

"McDougall's School Classics" (unabridged). (5d. net, limp cloth; 8d. net, cloth boards.)

(1) *The Legend of Montrose* (Scott); (2) *Gulliver's Travels in Lilliput and Brobdingnag* (Swift); and (3) *The Heroes* (Kingsley)—these are the first examples of a series precisely similar to the preceding series, except that no questions are here appended.

HISTORY.

A History of Great Britain. By E. M. Wilmot-Buxton. (3s. 6d. Methuen.)

Miss Wilmot-Buxton breaks through the conventional lines on which history class-books are usually written by treating the subject entirely on the movement method, discarding the old reigns and annals plan, which has been so closely followed in the past. At last there is a recognition that history for the classroom can be written on an intelligible, scientific plan. The matter is well set forth, interesting quotations being given to illustrate and enliven the drier portions of the subject. The style is clear and terse, but occasionally unduly compressed. Unfortunately there are not a few blunders—due, no doubt in some degree, to the extensive range of the subject and the necessity for condensation. The Statute "De Heretico Comburendo (1401)" was passed not by the whole "Parliament," but by the Lords only, the Commons throughout the whole of the reign being actively opposed to the Church. It was "J. R." (not "T. H.") Green that wrote the "Short History." M. Jusserand's book is "Wayfaring Life in Middle Ages" (not in "Fourteenth Century"). Cranmer played "fast and loose" (not "*false* and loose") with his conscience. In spite of such blemishes the book will prove very useful to students that have already gained some knowledge of the outlines of history; it will appeal in particular to such as have a real interest in the subject. Its examination value, too, is by no means inconsiderable. There is a good supply of excellent maps, and relevant questions and lists of books for wider reading accompany each chapter. The book is on right lines and should have a wide circulation.

The Great Rebellion, 1603–1660. By A. Hassell. (2s. 6d. Rivingtons.)

This little volume, one of an excellent series, is devoted to the epoch of which the Civil War is the dramatic climax. It deals comprehensively with the varying aspects of the struggle between the Monarchy and the Parliament, with the Religious Settlement, and with the development of our colonial Empire. While minutiæ have been omitted, there is sufficient detail to meet the requirements of the ordinary reader. The results of recent historical research have been assimilated and utilized to good purpose. The "apostasy" of Wentworth is, for once, satisfactorily disposed of. The sections on the Commonwealth embody some of the conclusions of such scholarly works as Prof. Firth's "Cromwell." The method and arrangement are eminently satisfactory. The principle of comparison is freely utilized. Possessing the rare faculty of historical judgment, Mr. Hassell knows well how far to pursue a topic, what to emphasize, and what to discard. There are maps, summaries, and additional notes appended to each chapter, all of which are of great value. We should strongly recommend students that are specializing on this period to take note of this scholarly little work.

Mr. T. Fisher Unwin issues a third impression of *In Dwarf Land and Cannibal Country*, by A. B. Lloyd (5s.)—a record of travel and discovery in Central Africa, with an account of the Sudanese rebellion of 1897 and of experiences in the great Pigmy forest. Mr. Lloyd crossed from Zanzibar to the mouth of the Congo. The narrative is instructive and unpretentious, and the maps are really useful and the illustrations numerous and effective.

GEOGRAPHY.

The Senior Scientific Geography. By Ellis W. Heaton, B.Sc., F.G.S., Principal of the Tynemouth Municipal High School, North Shields. (5s. net. Ralph, Holland, & Co.)

This very substantial volume (of 862 pages) is based upon the seven volumes of "A Scientific Geography" which we noticed very favourably in our June issue (page 242). Three of the seven books (II, III, and IV—British Isles, Europe, and North America) are incorporated entire; the rest are partially reproduced, with some modifications, and with addition of special chapters and of an altogether new section, on South America. The treatment marks out the broad features in adequate fullness, and then fills in the necessary details in simple, systematic, and agreeably readable form. The work will constitute a comprehensive and attractive class-book for the upper forms of secondary schools and pupil-teachers' centres. It is profusely and judiciously illustrated: there are 384 figures, including maps (political, commercial, physical, geological, climatic, &c.), and useful diagrams. Evidently the utmost care has been applied to render it complete and efficient.

A Physiographical Introduction to Geography. By A. J. Herbertson, M.A., Ph.D., Professor of Geography in the University of Oxford. (1s. 6d. Clarendon Press—"The Oxford Geographies.")

An extremely useful outline, systematic, lucid, and simple. Though prepared as an introduction to the "Senior Geography," it serves equally well as a supplement to the "Junior Geography"; and it may be obtained bound up with either, as well as separately. There are sixty-three figures, including a number of very carefully compiled maps, which form an important feature of the volume. Appended is a pointed and suggestive set of questions on the different sections by Miss F. M. Kirk, B.A., Head Mistress of Sleaford Girls' High School. The little volume will be widely appreciated.

Miss Kirk has also compiled *Questions on the Senior Geography*, and Mr. E. G. R. Taylor, B.Sc., has furnished a *Statistical Appendix*, both of which are included in one pamphlet (1s., Clarendon Press), forming a very useful supplement to the volume.

Experimental Geography. By C. C. Dingwall, F.E.I.S., Second Master, Stonelaw Higher Grade School, Rutherglen, N.B. (2s. 6d. Bell.)

Mr. Dingwall offers material amply sufficient for a full practical geography course for pupils in secondary, higher grade, and supplementary schools, ranging the exercises in connected series and in natural order. The explanations are simple and clear: the exercises are practical and skilfully devised; and there are over a hundred maps, charts, and diagrams, very carefully selected and constructed. A very great amount of thought, experience, and labour has gone to the making of this unpretentious manual.

RELIGIOUS AND MORAL.

Egypt and the Egyptians. By the Rev. J. O. Bevan, M.A., F.G.S., Assoc.Inst.C.E., F.S.A., sometime Prizeman, Exhibitioner, and Foundation Scholar of Emmanuel College, Cambridge; Rector of Chillenden, Dover. (5s. net. Allen.)

The present volume brings to a point the author's prolonged studies in the subject, with impressions derived from a visit to Egypt on the way home from the meeting of the British Association at Cape Town in 1905; and it has the advantage of a preface from the pen of Prof. Sir George H. Darwin, the President of the Association in that year, to whom the work is dedicated. The scope is comprehensive: the physical features of the country, the population, the language, the ancient cities and monuments, the Coptic religion, the Mohammedan faith, the relations with Palestine and other neighbouring nations during Old and New Testament times, the rise and spread of Eremitism, the character of recent literary finds, the Five Great Uncial Codices, and the history of our alphabet so far as influenced by the hieroglyphic character, &c. "It has been the author's aim to treat all these various subjects in such wise as to give a full, true, and dramatic representation in a popular form, and to bring within a reasonable compass the salient points of what may be called the life history of this classic period from early times even up to the present day." It has required a strong effort of condensation to treat so many topics in popular, or even intelligible, form within the narrow limits of a single handy volume. The selection of points, however, has been very judicious, and the narrative is lucid and extremely interesting throughout. The volume is very welcome as a trustworthy compendium, which may serve admirably as an introduction to special treatises or papers on the particular subjects.

Great Issues. By Robert F. Horton. (7s. 6d. net. Fisher Unwin.)

The "Issues" are, indeed, great; and they are raised under the multifarious headings of myths, religion, morality, politics, socialism, philosophy, science, theology, literature, art, life, death. Here is scope and verge enough for speculative interest. On all these subjects Dr. Horton discourses with charming facility, and with copious literary illustration from ample commonplace registers. His outlook is broad, and his orthodoxy is unimpeachable; at all points he is straining after the true Christian ideal. Even a well read man may obtain fresh information at points, and fresh applications of previously known facts. It is difficult, however, to ascribe to Dr. Horton any deep thought on the various

problems or any real advance on positions already secured. The chapters must be taken as pleasant popular papers of a superior order. The type is most liberal and agreeable.

MISCELLANEOUS.

The story of the origin and development of *The Borough Polytechnic Institute*, the first of the Polytechnics opened under the Central Scheme of the Charity Commissioners (1891), has been written from the official records by Edric Bayley, Chairman of the Governing Body (1891–1905), and a well known member of the London School Board (1885–91) and of the London County Council (1892–1907). (6s. net. Elliot Stock.) Mr. Sidney Webb, in his introduction, properly signalizes "one great omission"; for "these dry official records give no hint of the patient devotion and persistent labours in the interests of the Borough Polytechnic of Mr. Bayley himself." "And we must not forget that when, in 1905, Mr. Bayley relinquished the post of chairman that he had made alike so onerous and so useful, he set the crown on many unrecorded generosities by the munificent donation of £5,235, which secured for the institution its handsome 'Edric Hall.'" The volume is handsomely produced. It forms a striking and instructive record of an "unusually interesting example of the happy co-operation of endowment and municipal aid, of voluntary initiative and collective control."

The Peace Yearbook, 1910 (1s. net, National Peace Council, 167 St. Stephen's House, Westminster), makes its first appearance. It will be widely and warmly welcomed as a comprehensive and careful digest of information about the peace movement at home and abroad, with a directory of peace and arbitration societies, biographies and photographs of leading pacifists, special (brief) articles on England and Germany, armies and navies of the world, conscription, &c. There is still room for expansion in future editions.

The "Art-Chronicle" Academy Pictures (3d.) gives a handy descriptive criticism of works shown in the various galleries, with numerous illustrations. There is prefixed a plan indicating the leading exhibits under review. The pamphlet is wonderfully well produced at the price. It will form an intelligent and suggestive guide.

"*The Photographic Annual*, 1910–11, incorporating the Figures, Facts, and Formulæ of Photography," edited by E. J. Wall, F.R.P.S. (1s. net, Dawbarn & Ward), is the sixth edition, extended, largely rewritten, and revised. It contains a vast amount of practical matter, carefully brought up to date. A very useful and extensive glossary is appended.

The Unique Blackboard, manufactured by Messrs. Wilson & Garden, Kilsyth, near Glasgow (Agents, W. & R. Holmes, Glasgow), is recommended on a dozen grounds, and these embody but "a few of the many advantages conferred" by the use of it. In order to convince Educational Authorities of its practical utility and special advantages, it "will be sent for one month's free trial, absolutely without expense or obligation."

East Coast Holidays, by Percy Lindley—a new handbook issued by the Great Eastern Railway, and to be obtained free from the Superintendent of the line (Liverpool Station, E.C.)—comes very opportunely. It gives prominence to some less known districts in East Anglia and to the country between the Cromer and Hunstanton Coast and the Norfolk Broads. The illustrations, which are mostly in colours, are abundant and attractive. The maps are very serviceable.

FIRST GLANCES.

Classics.

Aristophanes: The Knights. Greek Text revised, with a Translation into corresponding metres, Introduction, and Commentary. By Benjamin Bickley Rogers, M.A., Hon. D.Litt., Barrister-at-Law, sometime Fellow, and now Honorary Fellow, of Wadham College, Oxford. 10s. 6d. Bell.

Cicero: In Catilinam, I, IV. Edited by T. T. Jeffery, M.A., late Fellow of St. Peter's College, Cambridge, and J. F. Stout, B.A. Camb. Clive (University Tutorial Series).
[Good historical introduction and adequate notes.]

Cicero: Select Letters and Extracts for Junior and Middle Forms. By A. R. Cumming, M.A., Classical Master, Dollar Institution. 2s. 6d. Edward Arnold.
[Judicious selection: "letters that throw light on the social life of the time and on the character of Cicero or his correspondents." Life of Cicero; chapter on the style of the letters; syntax summary; exercises and conversations; vocabulary. Excellent.]

Livy: The Story of the Kings of Rome. Adapted by G. M. Edwards, M.A. 8d. Cambridge University Press.
[Text and vocabulary.]

Varro on Husbandry, Aids to. Book III, Farm Produce. By "A. H." 9d. net. Glasgow: Stenhouse.
[Vocabulary of technical expressions and of more difficult phrases.]

Mathematics.

Algebra, Elements of. By Arthur Schulze, Ph.D., Assistant Professor of Mathematics, New York University, Head of the Mathematical Department, High School of Commerce, New York City. 4s. 6d. Macmillan.
[All unnecessary methods and "cases" are omitted, and so are all parts of the theory beyond the comprehension of the student or logically unsound. "A great deal of theory offered in the average text-book is logically unsound." Topics of practical importance are brought to the front.]

Arithmetic, Public School. By W. M. Baker, M.A., Head Master of the Military and Civil Department, and A. A. Bourne, M.A., late Head Mathematical Master on the Classical Side, at Cheltenham College. 3s. 6d.; with Answers, 4s. 6d. Bell.
["Employ and illustrate the methods which have been proved by experience to be the most successful under modern conditions." Examples abundant.]

Arithmetical Examples, Practical, of Everyday Life; a Series of carefully graded Exercises based on reliable data, forming a Useful Companion to any series of Arithmetics in Elementary Schools. Classes I to VI, 2d., 2d., 2d., 3d., 3d., 3d. net; Answers to each book, 3d. net. Educational Supply Association.
[Mental calculations; short methods; revision exercises. Develop intelligence; mechanical work discarded. An exceptionally sensible series; but is it necessary to figure a row of eggs or a plateful of apples?]

Exercises and Examination Papers in Arithmetic, Logarithms, and Mensuration. By Charles Pendlebury, M.A. Seventh Edition, revised and enlarged. With Answers. 2s. 6d. Bell.

Mathematics, Second Stage (with Modern Geometry). Edited by William Briggs, LL.D., M.A., B.Sc., F.R.A.S. 3s. 6d. Clive (Organized Science Series).

English Literature.

Arnold, Matthew: Selected Poems of. Edited by Hereford B. George, Fellow of New College, and A. M. Leigh, formerly Scholar of Somerville College, Oxford. 2s. Clarendon Press.
[Introduction biographical and literary. Helpful notes.]

Browning, Robert: Christmas Eve. 6d. Allenson (Heart and Life Booklets, No. 9).
[Clear type and tasteful get-up.]

Burke: Reflections on the Revolution in France. Edited by H. P. Adams, B.A. Camb. 2s. 6d. Clive (University Tutorial Series).
[Very useful introduction and notes.]

Carlyle: The Hero as Prophet, Man of Letters, and King. Edited by G. A. Twentyman, Assistant Master, Manchester Grammar School. 2s. Nutt.
[Introduction biographical and literary; brief helpful notes; index. Good type and strong get-up.]

Jefferies, Richard: The Open Air. 5s. net. Chatto & Windus.
[Twenty-one charming papers, collected from various journals and magazines. Twelve coloured illustrations by Ruth Dollman.]

Milton: Comus, L'Allegro, Il Penseroso, Lycidas. Edited by Oliver Elton, Professor of English Literature in the University of Liverpool. Also Arcades, and Sonnets. 2s. Clarendon Press.
[One-volume reissue of various Oxford editions of Milton's minor poems, set for different examinations: scholarly editing and excellent get-up.]

Murray's English Literature Series.—Readings in English Literature: Intermediate Course, Vol. II, Seventeenth and Eighteenth Centuries (1625–1780), and Vol. III, Nineteenth Century (1780–1880); Senior Course: Vol. III, Nineteenth Century (1780–1880). Edited by E. W. Edmunds, M.A., B.Sc. Lond., Senior Assistant Master at the Luton Modern School, and Frank Spooner, B.A. Lond., Director of Education for Bedfordshire. 2s. 6d., 2s. 6d., 3s. 6d. The Story of English Literature, Vol. III, Nineteenth Century (1780–1880). By the same Scholars. 3s. 6d.
[Comprehensive and excellent. "A stimulus to the young student, an encouraging guide to the older reader."]

Oliver and Boyd's Readings in English Literature. Selected by Robert F. Savage. With Introduction by W. L. Carrie, M.A., one of the Masters of Method, Edinburgh Provincial Training College. Books I, II, and III. 1s. 6d., 1s. 9d., and 2s.
[For use in higher grade and secondary schools (age twelve to sixteen). Attractive passages from standard authors. Give a fairly comprehensive survey of the chief literary forms of the language. "The aim throughout has been to awaken a literary interest." Numerous good illustrations. Excellent.]

Stories Historical and Literary.

Ancient History, Stories from. By Ernest Bowyer, B.A., B.Sc., Assistant Master, Owen's School, Islington. 1s. 6d. Methuen (New Historical Series).
[After Board of Education's circular on the Teaching of History. From Ancient Egypt to Constantine the Great. Two maps. Simple and lucid. Excellent.]

European History, Stories from. By Lucy Dale. 1s. 3d. Longmans.
[From the Persian Wars to Wellington. Simple; numbered paragraphs. Very attractive and useful; but needs revision at points (*e.g.*, Plassey). Admirably illustrated: four plates in colour, thirty-nine other illustrations, including half-a-dozen serviceable maps.]

Faerie Queene, Stories from the. Retold from Spenser by Lawrence H. Dawson. 1s. 6d. Harrap ("Told through the Ages" series).
[Charmingly written; and effectively illustrated by Gertrude Demain Hammond, R.I.]

Lion Heart: The Story of the Reign of Richard the First. By Herbert Strang, and Richard Stead, F.R.H.S. 1s. Henry Frowde and Hodder & Stoughton (Herbert Strang's Historical Series).
[Vivid and forcible presentation. Illustrations.]

READINGS FOR YOUNG FOLK.

"A.L." Bright Story Readers, The.—Grade III: The Rambles of a Rat (A.L.O.E.). 3d. Grade VI: A Wonder Book (Hawthorne). 4d. Both prepared by the Editor of the series (Mr. Alfonzo Gardiner). E. J. Arnold.
[Carefully adapted and agreeably got up.]

"Books for Young Readers."—(1) The Two Parrots: a Tale of the Coronation. By M. E. Wintle. (2) The Story of a Cat, told by herself in words of one and two syllables. (3) The Three Monkeys, chiefly in words of one and two syllables. 6d. each. Bell.
[Attractive new series, illustrated. Well printed and strongly got up.]

"Chambers's Complete Tales for Infants."—(1) Madcap Maisie (told by her doll). (2) Tire and Begin Again. 1d. each.
[Simple and interesting stories, in numbered paragraphs, with illustrations.]

Childhood, The Garden of: Stories for Little Folk at School and at Home. By Alice M. Chesterton. 1s. 6d. net. Nelson (Moral Instruction Series).
["To illustrate the lessons outlined for infants in the 'Graduated Syllabus of Moral Instruction for Elementary Schools' issued by the Moral Instruction League." But mostly suitable for Standards I and II. Well devised and engagingly written. Six full-page and twenty-four other illustrations.]

EDUCATION.

Board of Education.—(1) Regulations for the Training of Teachers for Elementary Schools (from August 1). Cd. 5239. 6d. (2) Reports from those Universities and University Colleges in Great Britain which participated in the Parliamentary Grant for University Colleges in 1908–9. Cd. 5246. 2s. 6d. (3) List of Training Colleges (and Hostels) for the Training of Teachers in Elementary Schools in England and Wales recognized under the Regulations for 1908–9, with information as to accommodation, fees, courses, and examinations. 3d. (4) and (5) Educational Pamphlets: No. 18, Compulsory Continuation Schools in Germany, 9d.; No. 19, The Course System in Evening Schools, 3d. (6) Statistics of the Certificate Examination for Teachers in Elementary Schools, 6d. Wyman.

Cambridge University: Higher Local Examinations.—Examination Papers, June, 1910; with Regulations for the Examinations in December, 1910, and June, 1911. 2s. Cambridge University Press.

Carnegie Foundation for the Advancement of Teaching.—Bulletin 3: Standard Forms for Financial Reports of Colleges, Universities, and Technical Schools. Bulletin 4: Medical Education in the United States and Canada.

Froebel Society.—Annual Report, 1909. 1s. to non-members.

Johns Hopkins University Circular. No. 6, 1910: Notes from the Classical Seminaries; Ten Years of Classical Philology. No. 7, Programmes of Courses; Courses for Teachers; Commencement (Address on "The Historical Development of the German Empire," by Count J. H. von Bernstorff, Imperial German Ambassador).

L.C.C.—(1) Report of the Education Officer on School Dentistry in Germany. No. 1354. 6d. (2) Report by Miss Durham, Inspector of Women's Technical Classes, on Juvenile Labour in Germany and how it is being dealt with. 3d. King.

London University: Matriculation Directory, No. 55, June, 1910, with articles on text-books. 1s. net. Clive (University Tutorial Press).

Manchester (City of) Education Committee.—Annual Report, 1908–9.

Reading, The Faculty of: The Coming of Age of the National Home-Reading Union. By George Radford, M.A., Christ's College. 1s. net. Cambridge University Press.
[Most interesting history of the activities of the Union.]

MISCELLANEOUS.

Family Responsibility to the State. By Miss Edith H. Scott. Paper read at a Group Meeting of the Liverpool Ruskin Society.

Fire Tests with Textiles: Committee's Report. Offices of the British Fire Prevention Committee, Waterloo Place, Pall Mall.
[Flannelette, &c.]

MATHEMATICS.

16836. *Corrected.* (Professor NEUBERG.)—Des coniques de même excentricité c/a ont un foyer commun F et même tangente t. Démontrer que le lieu du second foyer F′ est une circonférence et que les deux directrices enveloppent des coniques. Si les coniques passent par un point commun M, le lieu de F′ est une podaire de circonférence et les deux directrices enveloppent des circonférences.

Additional Solution by the PROPOSER.

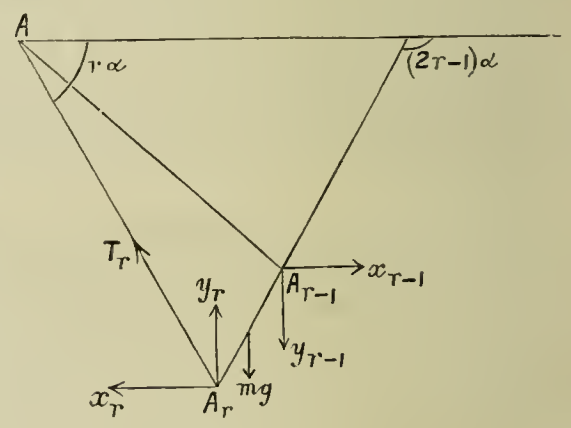
(1) Soient M un point de t, F′ le second foyer de la conique qui touche t en M. Prolongeons F′M de MH = MF; le point H est symétrique de F par rapport à t. Le rapport F′F : F′H = $c : a$; donc F′ décrit une circonférence.

Soient K, K′ les points de rencontre des deux directrices avec l'axe FF′; les rapports FF′ : FK, FF′ : FK′ étant constants, les points K, K′ décrivent des circonférences. Par conséquent, les directrices enveloppent des coniques dont ces circonférences sont les circonférences décrites sur le grand axe comme diamètre et dont F est un foyer.

(2) Soit M le point fixe donné, MG la perpendiculaire à la directrice de l'une des coniques proposées. La directrice a pour enveloppe la circonférence de centre M et de rayon MF.a/c. La projection K de F sur la directrice décrit la podaire de F par rapport à cette circonférence; le rapport FF′ : FK étant constant, F′ décrit également une podaire de circonférence. Le rapport FK′ : FK étant constant, l'enveloppe de la seconde directrice est homothétique à celle de la première directrice par rapport à F; donc elle est également une circonférence.

12085. (G. F. WALKER, M.A.)—n equal uniform rods of mass m are freely jointed together end to end, and placed in the form of a regular polygon, $A, A_1, A_2, \ldots, A_{n-1}$, of n sides. The joints $A_2, A_3, \ldots, A_{n-2}$ are then joined to A by light inelastic strings which are just tight, and the system is hung up by the joint A, and hangs in a vertical plane under the action of gravity. Show that the tension of the string AA_r is $2mg \sin(r\pi/n)$.

Solution by M. T. NARANIENGAR, M.A.



Consider the rod $A_{r-1}A_r$. The string AA_r may be supposed to be attached to the end A_r of the rod. Similarly the other strings.

Now the forces keeping the rod at rest are: the weight mg, T (tension in AA_r), actions at the joints A_r, A_{r-1} (denoted by corresponding suffixes). Resolving horizontally and vertically and taking moments, we get, as usual,

$$x_r + T_r \cos r\alpha = x_{r-1}, \quad y_r + T_r \sin r\alpha = y_{r-1} + mg \quad \ldots\ldots \text{(i, ii)},$$

$$x_{r-1} \sin(2r-1)\alpha = (y_{r-1} + \tfrac{1}{2}mg)\cos(2r-1)\alpha \ldots\ldots\ldots\ldots \text{(iii)},$$

where α stands for π/n.

From (iii) and the corresponding equation in x_r, y_r, we deduce, by subtraction,

$$x_r \tan(2r+1)\alpha - x_{r-1}\tan(2r-1)\alpha = y_r - y_{r-1} = mg - T_r \sin r\alpha, \text{ by (ii)}.$$

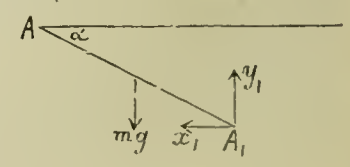
Eliminating T_r between this and (i),

$$x_r \sin(r+1)\alpha/\cos(2r+1)\alpha - x_{r-1}\sin(r-1)\alpha/\cos(2r-1)\alpha$$
$$= mg\cos r\alpha = \tfrac{1}{2}mg \operatorname{cosec}\alpha\,[\sin(r+1)\alpha - \sin(r-1)\alpha];$$

therefore $\sin(r+1)\alpha\,[x_r \sec(2r+1)\alpha - \tfrac{1}{2}mg\operatorname{cosec}\alpha]$
$= \sin(r-1)\alpha\,[x_{r-1}\sec(2r-1)\alpha - \tfrac{1}{2}mg\operatorname{cosec}\alpha]$.

That is,

$$\sin(r+1)\alpha.\lambda_r = \sin(r-1)\alpha.\lambda_{r-1} \text{ (say)}.$$



Similarly

$$\sin r\alpha.\lambda_{r-1} = \sin(r-2)\alpha.\lambda_{r-2},$$

and so on.

$$\sin 3\alpha.\lambda_2 = \sin 2\alpha.\lambda_1.$$

But, from the equilibrium of AA_1,

$$x_1 \sin\alpha = (y_1 - \tfrac{1}{2}mg)\cos\alpha.$$

Also, from (iii), $\quad x_1 \sin 3\alpha = (y_1 + \tfrac{1}{2}mg)\cos 3\alpha$;

therefore, eliminating y_1, $\quad x_1 \sin 2\alpha = mg\cos\alpha\cos 3\alpha$;

therefore $\quad x_1 \sec 3\alpha - \tfrac{1}{2}mg\operatorname{cosec}\alpha = 0$; $\quad$ therefore $\quad \lambda_1 = 0$.

Hence $\lambda_2 = \lambda_3 = \ldots = \lambda_r = 0$; therefore

$$x_r = \tfrac{1}{2}mg\cos(2r+1)\alpha.\operatorname{cosec}\alpha.$$

Substituting in (i) for x_r and x_{r-1},

$$T_r.\cos r\alpha = x_{r-1}-x_r = \tfrac{1}{2}mg.\operatorname{cosec}\alpha\,[\cos(2r-1)\alpha-\cos(2r+1)\alpha]$$
$$= mg.\sin 2r\alpha.$$

Thus
$$T_r = mg\sin r\alpha.$$

16886. (Professor NEUBERG.)—On donne une droite a et deux points B, C non situés dans un même plan avec a. A étant un point quelconque de a, on mène en B un plan β perpendiculaire à la droite AC et en C un plan γ perpendiculaire à la droite AB. Trouver la surface engendrée par l'intersection des plans β et γ.

Solution by C. M. ROSS, B.A.

Take the given line a as x-axis, and let this cut a plane through B at right angles in the point O which can be taken as origin. Through O draw lines in the plane mutually at right angles to a.

Let the co-ordinates of B and C be $(0, h, k)$ and (l, m, n).

If the variable point A be $(x', 0, 0)$, the equation of AB is
$$(x-x')/-x' = y/h = z/k,$$
and the equation of AC is $(x-x')/(l-x') = y/m = z/n$.

The equation of the plane β is of the form
$$px+q(y-h)+r(z-k) = 0,$$
and it is perpendicular to AC, therefore
$$p/(l-x') = q/m = r/n.$$
Hence the plane β is $(l-x')x+m(y-h)+n(z-k) = 0$ ..... (1),
and, similarly, the plane γ is
$$-(x-l)x'+h(y-m)+k(z-n) = 0 \text{ ..... (2).}$$

From (1) and (2), by subtraction,
$$x' = [lx+y(m-h)+z(n-k)]/l,$$
and, from (1), $x' = [lx+m(y-h)+n(z-k)]/x$;
therefore $lx^2+xy(m-h)+xz(n-k) = l^2x+lm(y-h)+ln(z-k)$
or $x^2+xy(m-h)/l+xz(n-k)/l = lx+my+nz-mh-nk.$

This is the surface generated by the intersection of the planes β and γ, and is a conicoid.

The PROPOSER remarks:—Les plans β et γ se correspondent dans deux faisceaux homographiques; donc leur intersection engendre généralement une hyperboloïde à une nappe.

16476. (CONSTANCE I. MARKS, B.A.) — In a game of cribbage, arrange the pips for a hand or crib of twenty-three, and find the probability of holding cards with such an arrangement. Is more than one solution of the problem possible?

Partial Solution by the PROPOSER.

The solution which was in the Proposer's mind when the question was set was that of a hand or crib consisting of three *fives*, a *six*, and a *four*. Another possible solution has since presented itself, namely, a hand or crib in which three *fives* and two *knaves* are combined—one of the fives being the turn-up card, and one of the knaves *his nob*.

16885. (Professor E. B. ESCOTT.)—Show that the sum of the series
$$1/a_1+1/a_1a_2+1/a_1a_2a_3+\ldots,$$
where
$$a_2 = a_1^2-2,\quad a_3 = a_2^2-2,\quad \ldots,$$
is
$$\tfrac{1}{2}[a_1-\sqrt{(a_1^2-4)}],\quad \text{when}\quad a_1 \geqslant 2.$$

(Note.—This furnishes one of the most rapid methods of finding the square root of a number to a large number of decimal places. Ex. —Let $a_1 = 6$,
$$1/6+1/(6.34)+1/(6.34.1154)+1/(6.34.1154.1331714)+\ldots = 3-2\sqrt{2}.$$
Four terms of this series will give $\sqrt{2}$ to 23 decimal places, five terms to 48 decimal places, &c.)

Solutions (I) *by* G. N. WATSON, B.A.; (II) *by* W. F. BEARD, M.A.

(I) An investigation equivalent to the following appeared in the *Mathematical Gazette*, p. 361, December, 1903:—

Let
$$\tfrac{1}{2}[a_r-\sqrt{(a_r^2-4)}] = f(a_r),$$
then
$$f(a_{r+1}) = \tfrac{1}{2}[a_{r+1}-\sqrt{(a_{r+1}^2-4)}] = \tfrac{1}{2}[a_r^2-2-\sqrt{(a_r^4-4a_r^2)}],$$
so that
$$f(a_r) = 1/a_r\,[1+f(a_{r+1})].$$
Consequently
$$f(a_1) = 1/a_1\,[1+f(a_2)] = 1/a_1+1/a_1a_2\,[1+f(a_3)]+\ldots$$
$$= 1/a_1+1/a_1a_2+\ldots+1/(a_1a_2\ldots a_r)+[1/(a_1a_2\ldots a_r)]\,f(a_{r+1}).$$
Now $a_r \geqslant 2$, so that as $r\to\infty$, $(a_1a_2\ldots a_r)^{-1}\to 0$, and
$$f(a_r) = 2\,[a_r+\sqrt{(a_r^2-4)}]^{-1} < 1,$$
giving
$$f(a_1) = 1/a_1+1/a_1a_2+1/a_1a_2a_3+\ldots.$$
Eight terms of the series obtained by putting $a_1 = 6$ give $\sqrt{2}$ to 390 places of decimals.

(II) Let α, β be the roots of $x^2-a_1x+1 = 0$, α being the greater.

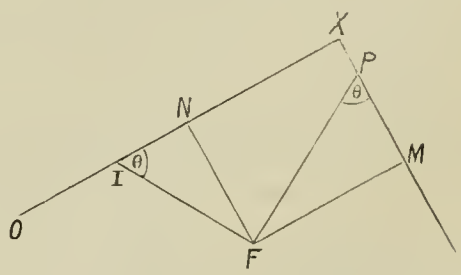
Thus
$$\alpha+\beta = a_1,\quad \alpha\beta = 1;$$
therefore
$$\alpha^2+\beta^2 = a_1^2-2 = a_2 \quad\text{and}\quad \alpha^2\beta^2 = 1;$$
therefore
$$\alpha^4+\beta^4 = a_3,$$
and similarly for $a_4, a_5, \ldots$. Thus the given series becomes
$$S = \frac{1}{\alpha+\beta}+\frac{1}{(\alpha+\beta)(\alpha^2+\beta^2)}+\frac{1}{(\alpha+\beta)(\alpha^2+\beta^2)(\alpha^4+\beta^4)}+\ldots$$
$$= \frac{\beta}{1+\beta^2}+\frac{\beta^3}{(1+\beta^2)(1+\beta^4)}+\ldots+\frac{\beta^{2^r-1}}{(1+\beta^2)\ldots(1+\beta^{2^r})}+\ldots;$$
therefore
$$\frac{S}{1-\beta^2} = \frac{\beta}{1-\beta^4}+\frac{\beta^3}{1-\beta^8}+\frac{\beta^7}{1-\beta^{16}}+\ldots+\frac{\beta^{2^r-1}}{1-\beta^{2^{r+1}}}+\ldots$$
$$\begin{aligned} &= \beta + \beta^5 + \beta^9 + \ldots \\ &\quad\ + \beta^3 + \beta^{11} + \ldots \\ &\quad\ + \beta^7 + \ldots \\ &= \beta+\beta^3+\beta^5+\beta^7+\ldots, \end{aligned}$$
for the general term of $\dfrac{\beta^{2^r-1}}{1-\beta^{2^{r+1}}} = \beta^{(2m+1)2^r-1}$,
which cannot $= \beta^{(2n+1)2^s-1}$,
unless $m = n$, $r = s$, and $(2m+1)2^r-1$ gives all odd numbers by giving different values to m, r. Thus
$$S/(1-\beta^2) = \beta/(1-\beta^2);$$
therefore
$$S = \beta = \tfrac{1}{2}[a_1-\sqrt{(a_1^2-4)}].$$

The PROPOSER discusses the Question as follows:—

Let $a = x+1/x$. The series takes the form
$$1/(x+1/x)+1/[(x+1/x)(x^2+1/x^2)]+1/[(x+1/x)(x^2+1/x^2)(x^4+1/x^4)+\ldots$$
$$= (x-1/x)\,[1/(x^2-1/x^2)+1/(x^4-1/x^4)+1/(x^8-1/x^8)+\ldots].$$
The sum of this series to n terms is easily seen by induction to be
$$(x^{2^n-1}-1/x^{2^n-1})/(x^{2^n}-1/x^{2^n}).$$
This sum has the limit $1/x$ when $x>1$. Since
$$x+1/x = a,\quad x = \tfrac{1}{2}[a+\sqrt{(a^2-4)}],\quad\text{and}\quad 1/x = \tfrac{1}{2}[a-\sqrt{(a^2-4)}],$$
which is therefore the sum of the infinite series.

16876. (W. GALLATLY, M.A.)—Assume that the power of the Feuerbach point F for the circum-circle O
$$= \tfrac{1}{4}.\Sigma a^3(a-b)(a-c)/\Sigma a\,(a-b)(a-c);$$
and that OI is parallel to the Simson line of F in the Nine-Point. Then prove that, if ρ be the radius of the circle cutting orthogonally the circum-circle O, the in-circle I, and the nine-point circle N,
$$\rho = \tfrac{1}{4}.\Sigma a^3(a-b)(a-c)/\Sigma a^3(b-c).$$

Solution by the PROPOSER.



Let the common tangent to the circles I and N at the Feuerbach point F meet XM, the radical axis of the circles O and I, in P.

Then PF = ρ.

Since OI is parallel to the Simson line of F in the nine-point circle, and O is the orthocentre of the mid-point triangle; therefore
$$FN = 2\times\text{perpendicular from F on its Simson line}$$
$$= 2\times 2\times\tfrac{1}{2}R\cos\lambda\cos\mu\cos\nu,$$
where λ, μ, ν are the angles made by OI with the sides of the triangle.

Now a diagram shows that
$$\cos\lambda = \tfrac{1}{2}(b-c)/f\quad (OI = f);$$
therefore
$$FN = \tfrac{1}{4}.R[(b-c)(c-a)(a-b)]/f^3.$$
Since F is a point on the circle I, and PX is the radical axis of the circles O and I; therefore Power of F for circle O
$$= 2.OI.FM = 2f.\rho\sin\theta = 2f.\rho.FN/r = \tfrac{1}{2}.\rho/r.R(b-c)(c-a)(a-b)/f^2.$$
And
$$f^2 = R^2(1-2r/R) = R^2(1-8\sin\tfrac{1}{2}A\sin\tfrac{1}{2}B\sin\tfrac{1}{2}C)$$
$$= R^2.\Sigma.a(a-b)(a-c)/abc,$$
whence the result follows.

16851. (A. M. NESBITT, M.A.)—Trace the curves

(1) $x(y^2-ax)^2 = a^5$ (2) $y^5 = x\ a^2-xy)^2$; (3) $a(y^2-ax)^2 = x^5$.

Solution by R. S. Capon.

(1) $x(y^2-ax)^2 = a^5$.

When $x = \infty = y$, the branches of the curve become parallel to the axes.

Branches parallel to $x = 0$.

$x = a^5/(y^2-ax)^2 = a^5/y^4$, when $x = 0$, giving the branches 1 and 2.

Branches parallel to $y = 0$. — Obviously the parabolic branches 3 and 4.

Putting $y = 0$, we see that the curve meets the axis of x at $x = a$.

Putting $x = a$, we get

$$y = \pm a\sqrt{2} \quad \text{and} \quad y^2 = 0.$$

Therefore the curve is as Fig. 1, the branches 1, 3 and 2, 4 meeting at ∞.

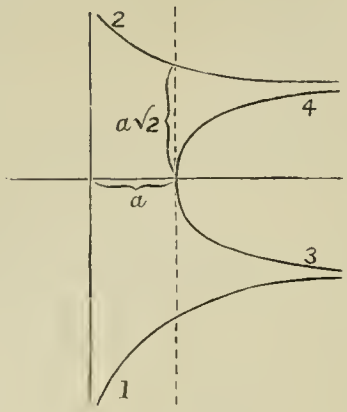


Fig. 1.

(2) $y^5 = x(a^2-xy)^2$. The tangent at the origin is $x = 0$, and there is 5-pointic contact.

Therefore the branch is as Fig. 2.

The directions at ∞ of the branches are given by

$$y^5 - x^3y^2 = 0.$$

Fig. 2.

Branches parallel to $y = 0$.—Expanding the equation of the curve and dividing by x^3, we get

$$y^2 - 2a^2(y/x) + a^4/x^2 - y^5/x^3 = 0.$$

Therefore the branch touches $y = 0$ at $x = \infty$.

Branches parallel to $y = x$.—The equation may be written

$$y - x = (xa^4 - 2a^2x^2y)/[y^2(y^2+xy+x^2)] = (xa^4 - 2a^2x^3)/3x^4, \text{ when } y = x$$
$$= -2a^2/3x,$$

when $x = \infty$, giving the branches 1 and 2 (see Fig. 3).

Putting $x = 0$ and $y = 0$, we see that the curve only cuts the axes at the origin and at ∞.

Putting $y = x$, we get

$$x = \pm a/\sqrt{2}$$

and $a^2 = 0$ (*i.e.*, at ∞).

Therefore the curve is as Fig. 3, the branches 3, 4 and 5, 6 meeting at ∞.

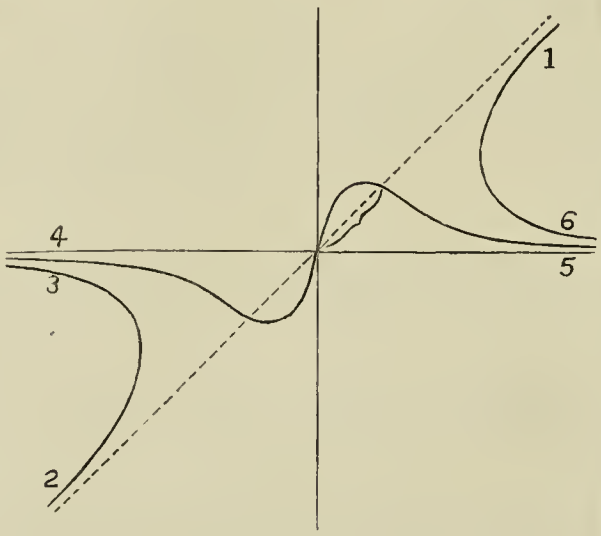


Fig. 3.

(3) $x^5 = a(y^2-ax)^2$.

The equation may be written

$$y^2 = ax \pm \sqrt{(x^5/a)}.$$

Therefore the branches at the origin are as Fig. 4.

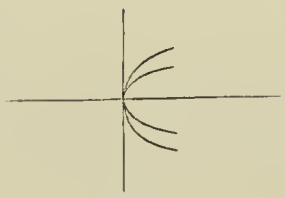


Fig. 4.

Expanded, the equation is

$$x^5 - ay^4 + 2a^2xy^2 - a^3x^2 = 0.$$

In seeking the branches at ∞, we may neglect the terms $2a^2xy^2$ and a^3x^2, and then $x^5 - ay^4 = 0$ gives 1 and 2 (see Fig. 6).

Fig. 5.

Putting $y = 0$, the curve meets the axis of x at the origin and at $x = a$.

Taking the points $x = a$, $y = 0$ as new origin, the equation becomes

$$3ax + 2y^2 + \ldots \text{ terms which may be neglected}$$
$$= 0.$$

Therefore the branch at $x = a$, $y = 0$ is as Fig. 5.

Putting $x = a$ in the equation, we get

$$y^2 = 0 \quad \text{and} \quad y = \pm a\sqrt{2}.$$

Therefore the curve is as Fig. 6.

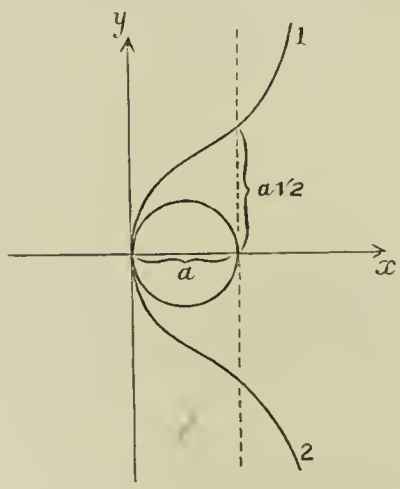


Fig. 6.

Note by the Proposer.

The curve (2) is got from (1) by taking the old axis of x as the new line at ∞, and *vice versa*. Similarly, (3) is got from (1) by interchanging the axis of y and the line at ∞. It is, perhaps, not without interest to notice what the obvious complications at the origin in (2) and (3) *look like* when they are safely despatched to an infinite distance.

16380. (V. Daniel, B.Sc.)—Two triangles (of given areal modulus, $\lambda^2 \equiv 1/\lambda'^2$) have

$$\cot A + \cot A' = \cot B + \cot B' = \cot C + \cot C' = x/\sqrt{3}.$$

If the relations of circumscription and inscription (A on a', A' on a, ...) are mutually interchangeable by rotation of either triangle through an angle θ about the same point, show that

$$(x^2-\lambda^2)(x^2-\lambda'^2) = 4\cos^4\tfrac{1}{2}\theta \text{ or } 4\sin^4\tfrac{1}{2}\theta.$$

Correction to the Proposer's *Solution, Reprint*, Vol. xiv.

Last line of solution by the Proposer is incorrect. The previous line should read $x^2\cos\theta = \mp 1 \pm \sqrt{[(x^2-\lambda^2)(x^2-\lambda'^2)]}$. The result stated in the Question should therefore be this.

16882. (D. Edwardes, B.A.)—Express

$$\int_0^1 u^{\gamma-1}(1-u)^{-\frac{1}{2}}(1-ux)^{\alpha+\beta-\gamma}F(2\alpha, 2\beta, 2\gamma, ux)\,du$$

as the product of two hypergeometric series, to a factor *près*.

Solution by G. N. Watson, B.A.

Let $(1-x)^{\alpha+\beta-\gamma}F(2\alpha, 2\beta; 2\gamma; x) = 1 + Bx + Cx^2 + Dx^3 + \ldots$.

Then, by Cayley's theorem (*Collected Mathematical Papers*, Vol. iii, pp. 268–269; or Whittaker, *Modern Analysis*, p. 265),

$$F(\alpha, \beta; \gamma+\tfrac{1}{2}; x)\,F(\gamma-\alpha, \gamma-\beta; \gamma+\tfrac{1}{2}; x)$$
$$= 1 + \frac{\gamma}{\gamma+\frac{1}{2}}Bx + \frac{\gamma\cdot\gamma+1}{\gamma+\frac{1}{2}\cdot\gamma+\frac{3}{2}}Cx^2 + \ldots.$$

So that

$$\int_0^1 u^{\gamma-1}(1-u)^{-\frac{1}{2}}(1-ux)^{\alpha+\beta-\gamma}F(2\alpha, 2\beta; 2\gamma; ux)\,du$$
$$= \int_0^1 u^{\gamma-1}(1-u)^{-\frac{1}{2}}(1 + Bux + Cu^2x^2 + \ldots)\,du$$
$$= \frac{\Gamma(\gamma)\,\Gamma(\frac{1}{2})}{\Gamma(\gamma+\frac{1}{2})}\left(1 + \frac{\gamma}{\gamma+1}Bx + \frac{\gamma\cdot\gamma+1}{\gamma+\frac{1}{2}\cdot\gamma+\frac{3}{2}}Cx^2 + \ldots\right)$$
$$= \frac{\Gamma(\gamma)\,\Gamma(\frac{1}{2})}{\Gamma(\gamma+\frac{1}{2})}F(\alpha, \beta; \gamma+\tfrac{1}{2}; x)\,F(\gamma-\alpha, \gamma-\beta; \gamma+\tfrac{1}{2}; x).$$

16883. (Lt.-Col. Allan Cunningham, R.E.)—Let

$$N_1 = \frac{x_1^3 \sim y_1^3}{x_1 \sim y_1},\quad N_2 = \frac{z_2^3 + x_2^3}{z_2 + x_2},\quad N_3 = \frac{z_3^3 + y_3^3}{z_3 + y_3},\quad N_4 = \frac{x_4^4 + y_4^4 + z_4^4}{x_4^2 + y_4^2 + z_4^2}.$$

Let $N_1' = \dfrac{x_1'^3 \sim y_1'^3}{x_1' \sim y_1'}$, $N_2' = \dfrac{z_2'^3 + x_2'^3}{z_2' + x_2'}$, $N_3' = \dfrac{z_3'^3 + y_3'^3}{z_3' + y_3'}$, $N_4' = \dfrac{x_4'^4 + y_4'^4 + z_4'^4}{x_4'^2 + y_4'^2 + z_4'^2}$.

Show that certain numbers N, of common occurrence, both prime and composite can, under certain simple conditions, be expressed in all the following forms at once, so that

$$N = N_1 = N_2 = N_3 = N_4 = \tfrac{1}{3}N_1' = \tfrac{1}{3}N_2' = \tfrac{1}{3}N_3' = \tfrac{1}{3}N_4'.$$

Solution by the Proposer.

It is easily seen that, if $z = x + y$ and $z' = x' + y'$; and

$$N = (x^3 - y^3)/(x - y);$$

then

$$N = \frac{x^3 \sim y^3}{x \sim y} = \frac{z^3 + x^3}{z + x} = \frac{z^3 + y^3}{z + y} = \frac{xz^3 + x^4}{xz + x^2} = \frac{yz^3 + y^4}{yz + y^2}$$
$$= \frac{(x+y)\,z^3 + x^4 + y^4}{(x+y)\,z + x^2 + y^2} = \frac{x^4 + y^4 + z^4}{x^2 + y^2 + z^2}.$$

Hence, taking $x_1 = x_2 = x$, $y_3 = y_1 = y$, $z_2 = z_3 = 2$, it follows that

$$N = N_1 = N_2 = N_3 = N_4.$$

Similarly, taking $x_1' = x_2' = x'$, $y_3' = y_1' = y'$, $z_2' = z_3' = z'$, it follows that

$$N' = N_1' = N_2' = N_3' = N_4'.$$

This establishes one-half of the required relations: it remains to show that $N = \frac{1}{3}N'$ is always possible; and it is easily found that, taking x or $y = \frac{1}{3}(2x' + y')$, y or $x = \frac{1}{3}(y' - x')$, $z = \frac{1}{3}(x + 2y)$ gives the required relation $N = \frac{1}{3}N'$.

It is known that any number of form $N = A^2 + 3B^2$ can be expressed in form $N = (x^3 \sim y^3)/(x \sim y)$. Hence every number of this form can be expressed in all the above forms at once.

Note.—The above results have an interesting consequence in yielding Dimorph Sextans. Thus, if $x = \xi^2$, $y = \eta^2$, and $z = \zeta^2 = \xi^2 + \eta^2$; then

$$N = \frac{\zeta^6 + \xi^6}{\zeta^2 + \xi^2} = \frac{\zeta^6 + \eta^6}{\zeta^2 + \eta^2} = \frac{\xi^6 \sim \eta^6}{\xi^2 \sim \eta^2} = \frac{\xi^3 \sim \eta^3}{\xi \sim \eta}\,\frac{\xi^2 + \eta^3}{\xi + \eta} = (\zeta^3 + \xi\eta)(\zeta^2 - \xi\eta),$$

which gives not only the elements (ξ, η, ζ) of the Dimorph Sextan, but also its two co-factors. Note that the utilization of the above

property of the Cuban for obtaining Dimorph Sextans depends on the (known) solvability of the Diophantine $\zeta^2 = \xi^2 + \eta^2$. This procedure cannot be extended to higher degrees than the sixth; for it would involve the condition $\xi^n + \eta^n = \zeta^n$, which is almost certainly impossible when $n > 2$.

QUESTIONS FOR SOLUTION.

16914. (R. S. Capon.)—Three points A′, B′, C′ are taken on the sides BC, CA, AB of a triangle ABC such that AA′, BB′, CC′ are concurrent in O. Forces are taken along BC, CA, AB such that the axis of homology of the triangles ABC and A′B′C′ is their resultant. Prove that the moments of the forces about O are equal.

16915. (C. M. Ross, B.A.)—Find the value of the double integral

$$\int_0^p \int_0^x \frac{y^n\,dx\,dy}{(p-x)^{\frac{1}{2}}(x-y)^{\frac{1}{2}}}.$$

16916. (Professor Sanjána, M.A.)—Prove that the sum of the series

$$\log(x-1) + (-1)^m \log(x+1) - \log(x^2 - 2x\cos\pi/m + 1)$$
$$+ \log(x^2 - 2x\cos 2\pi/m + 1) - \ldots$$
$$\ldots + (-1)^{m-1}\log[x^2 - 2x\cos(m-1)\pi/m + 1]$$

is $-\coth^{-1} x^m$ for any integral value of m.

16917. (The late R. Knowles.)—Prove that (1) the sum of the first r coefficients in the expansion of $(1+x)^{-4}$ is

$$-\tfrac{1}{24}r(r+2)(2r+5) \text{ when } r \text{ is an even number,}$$

and $\tfrac{1}{24}(r+1)(r+3)(2r+1)$ when r is an odd number;

(2) $1 - 2^4 + 3^4 - 4^4 \ldots \pm r^4 = (-1)^{r+1}[r(r+1)(r^2+r-1)] \div 2$.

16918. (Lt.-Col. Allan Cunningham, R.E.)—Show how to factorize large Dimorph Cuban Numbers, $N = x^3 + y^3 = x'^3 + y'^3$.

Ex.—Resolve into prime factors

$$N = 220086^3 - 220085^3 = 83188^3 - 83181^3.$$

16919. (J. J. Barniville, B.A., I.C.S.)—Factorize the expressions $x^5 - x^4 - 1$, $x^7 - 2x^5 + 1$, $x^7 - 2x^4 - 1$, and $x^{13} - 3x^9 - 1$, which have a common factor. Similarly factorize $x^7 - 2x^5 - 1$ and $x^8 - 3x^5 - 1$.

16920. (M. T. Naraniengar, M.A.)—In a central conic (centre C, foci S, S′) P is any point on the curve, and the reflection of CP in the conic meets the circle SPS′ in L; prove that the locus of L is the inverse of the conic with respect to a concentric circle.

16921. (C. E. Youngman, M.A.)—A rhombus ABCD has one side AB fixed and bisected at O. Through O are drawn a pair of rectangular hyperbolas; the asymptotes of one to bisect the angle C, the axes of the other to bisect the angle D. Show that the three other points common to the pair describe a cardioide, and that the envelope of the hyperbola C consists of two equal circles.

16922. (Professor Neuberg.)—Soit A′B′C′D′ le tétraèdre podaire d'un point quelconque M par rapport à un tétraèdre donné ABCD. Trouver (1) le lieu d'un point M tel que la somme des carrés des arêtes de A′B′C′D′ ait une valeur donnée; (2) le point qui rend cette somme minimum.

16923. (S. Narayana Aiyar.)—If the polar of the in-centre (or an ex-centre) with respect to an in-conic of a triangle passes through the circum-centre, then the pedal circle with respect to the triangle of the points in which the polar meets the conic touches the nine-point circle of the triangle.

16924. (W. F. Beard, M.A.)—A, B, C, D are four points on a conic; a similar and similarly situated concentric conic cuts AC, BD at P, Q, R, S; any conic through P, Q, R, S meets AB at E, F. Prove AE = BF.

16925. (Sonti V. Ramamurty, B.A.)—The foci of any conic passing through two pairs of isogonal conjugates with respect to any triangle are themselves isogonal conjugates.

16926. (A. M. Nesbitt, M.A.)—An infinite number of very small equal circles, each touching six others, is described over an area which is very large in comparison with that of a circle. Find the ratio between the sum of the areas of the circles and the sum of the spaces between.

16927. (D. Biddle.)—Without previous section of any sort, slice off from a given plane angle an exact fourth of it.

16928. (S. G. Soal.)—Let the medians of a triangle (ABC) meet the circum-circle in L_1, L_2, L_3. Produce BL_1, CL_2, AL_3 to meet the opposite sides of the triangle in P_2, P_3, P_1 respectively. Through Q_1, the harmonic conjugate of P_1 with respect to B and C, draw Q_1R_1 parallel to AB. Similarly, draw Q_2R_2 and Q_3R_3 parallel to BC and CA respectively. Show that Q_1R_1, Q_2R_2, Q_3R_3 are concurrent in the symmedian point.

16929. (R. F. Davis, M.A.)—ABCD is a quadrilateral whose diagonals AC, BD are at right angles; α, β, γ, δ the circum-centres of the triangles ABD, BCA, CDB, DAC respectively. Prove that $A\alpha$, $B\beta$, $C\gamma$, $D\delta$ are concurrent.

16930. (H. J. Raymond.)—Four straight lines PQ, QR, RS, and ST, of lengths 2, 3, 4, and 5 units respectively, form a plane zigzag-shaped figure. The angles PQR, QRS, and RST are 30°, 45°, and 60° respectively. Determine, geometrically, a straight line PP′ through P, to meet QR in K, RS in M, and ST in N, such that the areas of the triangles KMR and MNS shall be equal.

16931. (Professor Nanson.)—Prove that

$$\sin(b-c)\sin(a-a')\sin(a-b')\sin(a-c')$$
$$+ \sin(c-a)\sin(b-a')\sin(b-b')\sin(b-c')$$
$$+ \sin(a-c)\sin(c-a')\sin(c-b')\sin(c-c')$$
$$= \sin(b-c)\sin(c-a)\sin(a-b)\sin(a'+b'+c'-a-b-c).$$

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11049. (Professor Wolstenholme, Sc.D.)—Prove that (1) the equation of the director circle of the conic, whose rational equation in areal co-ordinates is $u = 0$, is

$$a^2(\partial_1 - \partial_2)(\partial_1 - \partial_3)u^{\frac{1}{2}} + b^2(\partial_2 - \partial_3)(\partial_2 - \partial_1)u^{\frac{1}{2}} + c^2(\partial_3 - \partial_1)(\partial_3 - \partial_2)u^{\frac{1}{2}} = 0,$$

where ∂_1, ∂_2, ∂_3 represent the operations $\partial/\partial x$, $\partial/\partial y$, and $\partial/\partial z$, and a, b, c are the sides of the triangle of reference; (2) the corresponding equation for trilinear co-ordinates is

$$(\partial_1^2 + \partial_2^2 + \partial_3^2 - 2\cos A\,\partial_2\partial_3 - 2\cos B\,\partial_3\partial_1 - 2\cos C\,\partial_1\partial_2)\,u^{\frac{1}{2}} = 0;$$

and (3) for Cartesian co-ordinates inclined at an angle ω,

$$\partial^2 u^{\frac{1}{2}}/\partial x^2 + \partial^2 u^{\frac{1}{2}}/\partial y^2 = 2\cos\omega\,(\partial^2 u^{\frac{1}{2}}/\partial x\,\partial y).$$

11329. (Professor Sylvester.)—If $\chi_\kappa(n)$ denote the highest-degreed irreducible algebraic factor of $\kappa^n - 1$, and κ is any even integer, prove that every divisor of $\chi_\kappa(\kappa.2^x)$ is of the form $\lambda\kappa.2^x + 1$, and, further, that the product of i such functions (obtained by giving x i distinct values but leaving κ unaltered) must be divisible by at least i *distinct* prime numbers of the form $\mu\kappa + 1$, thus establishing Dirichlet's theorem on arithmetic progressions for the case when the first term is unity.

11504. (D. Edwardes, B.A.)—The ellipsoid $x^2/a^2 + y^2/b^2 + z^2/c^2 = 1$ rotates about the axis of x with small angular velocity ω in an infinite mass of viscous liquid. Assuming that the motion is steady and that there is no slipping at the surface, prove that (1) the component velocities parallel to the axis at x, y, z are given by

$$u = dM/dz - dN/dy, \quad v = dN/dx - dL/dz, \quad w = dL/dy - dM/dx,$$

where
$$L = -\sigma\,[(b^2+c^2)\,x\,(d\Omega/dx) + c^2 y\,(d\Omega/dy) + b^2 z\,(d\Omega/dz)],$$
$$M = +\sigma\,[c^2 y\,(d\Omega/dx) - (b^2+c^2)\,x\,(d\Omega/dy)],$$
$$N = +\sigma\,[b^2 z\,(d\Omega/dx) - (b^2+c^2)\,x\,(d\Omega/dz)],$$

Ω is the potential at an external point of a solid ellipsoid of unit density,
$$\sigma = \omega/2\pi abc\,(b^2B + c^2C),$$
$$B = \int_0^\infty \frac{d\psi}{[(a^2+\psi)(b^2+\psi)^3(c^2+\psi)]^{\frac{1}{2}}}, \quad C = \int_0^\infty \frac{d\psi}{[(a^2+\psi)(b^2+\psi)(c^2+\psi)^3]^{\frac{1}{2}}};$$

(2) the couple which must be applied to the solid in order to maintain the motion is
$$32\pi\mu\omega\,(b^2+c^2)/5\,(b^2B + c^2C);$$

and (3) for the case of the sphere,

$$u = 0, \quad v = -\omega a^3 z/\gamma^3, \quad w = \omega a^3 y/\gamma^3.$$

11544. Professor Crofton, F.R.S.)—Prove that the mean area of the triangle formed by three points taken at random within any plane convex area Ω, is
$$M = \Omega - \iint C^3 S^2\,dp\,d\omega/\Omega^3,$$

where C is the length of any chord crossing the area, p, ω the co-ordinates of the line C, referred to any pole O inside the area, and any fixed axis through O, and S the area of either segment cut off from the area Ω by the chord C; the integration extending to all possible positions of the chord.

11687. (Professor Tissot.)—On donne une circonférence et trois droites qui ne la rencontrent pas. Construire les foyers d'une conique tangente à ces trois droites et bitangente à la circonférence.

11777. (Morgan Brierley.)—Given three points A, B, C in the circumference of a circle; find in it another point P, such that $PA^2(PB + PC)$ may be (1) a given quantity, and (2) a maximum.

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CLASS LISTS

OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS.—MIDSUMMER, 1910.

The list of successful candidates at the Colonial Centres will be published in the October number of "The Educational Times."

[*Throughout the following Lists, bracketing of names implies equality.*]

PRIZES.

General Proficiency.

FIRST CLASS [or SENIOR].

1. Thiemann, W. M. (*Isbister Prize.*) — Highbury High School for Boys.
2. Evans, A. T. (*Pinches Prize.*) — Stationers' Company's School, Hornsey.
3. [Not awarded.]
4. [Not awarded.]

SECOND CLASS [or JUNIOR].

1. Keeping, E. S. — Portsmouth Council Secondary School.
2. Green, G. G. — Portsmouth Council Secondary School.
3. Jelliffe, R. E. V. — Portsmouth Council Secondary School.
4. Davies, I. R. — Higher Elementary School, Pentre.

THIRD CLASS.

1. { Browett, Miss C. — The Friends' School, Mountmellick.
   { Gonzalo, B. — St. Joseph's College, Dumfries.
3. Turtle, Miss E. F. — The Friends' School, Mountmellick.
4. Agnew, A. P. — University School, Southport.

English Subjects.

FIRST CLASS.

1. Pollock, Miss M. F. — The Hiatt Ladies' College, Wellington.
2. Morrell, Miss B. M. — Municipal Girls' Secondary School, Devonport.

Mathematics.

FIRST CLASS.

1. Kendon, D. H. — Bethany House School, Goudhurst.
2. Thiemann, W. M. — Highbury High School for Boys.

Modern Foreign Languages.

FIRST CLASS.

1. Thiemann, W. M. — Highbury High School for Boys.
2. Antony, R. — St. George's College, Weybridge.

Classics.

FIRST CLASS.

1. Henderson, C. R. P. — Private tuition.
2. Ginns, J. S. — Hawkesyard College, Rugeley.

Natural Sciences.

FIRST CLASS.

[Not awarded.]

Taylor-Jones Prize for Scripture History.

FIRST CLASS.

Kirk, Miss V. M. — Upper St. Leonards Ladies' College.

Pitman Medals for Shorthand.

1. Toole, F. J. (*Silver Medal.*) — St. Aloysius' College, Hornsey Lane, N.
2. Moylan, F. E. (*Bronze Medal.*) — St. Aloysius' College, Hornsey Lane, N.

The following is a List of the Candidates who obtained the FIRST and SECOND PLACES in each Subject on FIRST CLASS PAPERS. (Only those who obtained Distinction are included.)

Scripture History.

1. { Kirk, Miss V. M. — Upper St. Leonards Ladies' College.
   { Livingston, J. M. — St. George's College, Weybridge.

English Language.

1. { Rickard, Miss D. G. M. — Municipal Girls' Secondary School, Devonport.
   { Stanley, Miss E. R. — The Grammar School, Penistone.

English History.

1. { Pollock, Miss M. F. — The Hiatt Ladies' College, Wellington.
   { Winbush, Miss D. E. — Geneva House School, Shootup Hill, Brondesbury.

Geography.

1. Morrell, Miss B. M. — Municipal Girls' Secondary School, Devonport.
2. Cain, Miss L. G. — Municipal Girls' Secondary School, Devonport.

Arithmetic.

1. Kendon, D. H. — Bethany House School, Goudhurst.
2. { Bradwell, C. H. — The Grammar School, Penistone.
   { Chant, E. V. — University School, Rochester.
   { Lane, Miss L. M. — Municipal Girls' Secondary School, Devonport.
   { Sharp, J. R. — Dunheved College, Launceston.

Algebra.

1. Kendon, D. H. — Bethany House School, Goudhurst.
2. Thiemann, W. M. — Highbury High School for Boys.

Geometry.

1. { Evans, A. T. — Stationers' Company's School, Hornsey.
   { Kendon, D. H. — Bethany House School, Goudhurst.

Trigonometry.

1. { Kendon, D. H. — Bethany House School, Goudhurst.
   { Thiemann, W. M. — Highbury High School for Boys.

Mechanics.

1. Kim Yoo — Eastbourne College.
2. { Chant, E. V. — University School, Rochester.
   { Thiemann, W. M. — Highbury High School for Boys.

Mensuration.

1. Thomas, H. — Advanced Boys' School, Merthyr Tydfil.
2. Phillips, B. — Advanced Boys' School, Merthyr Tydfil.

French.

1. Lavoisier, A. M. — St. Aloysius' College, Hornsey Lane, N.
2. Guillier, P. M. E. — St. Aloysius' College, Hornsey Lane, N.

German.

1. Capelle, Miss A. C. — Rockhill, Folkestone.
2. Heim, G. E. — St. George's College, Weybridge.

Spanish.

1. Clark, L. L. — St. Joseph's College, Dumfries.
2. { Cortina, J. J. — St. Aloysius' College, Hornsey Lane, N.
   { Mackay, T. H. — St. George's College, Weybridge.

Welsh.

1. Hughes-Williams, T. — Private tuition.
2. Owen, Miss A. — Advanced Girls' School, Merthyr Tydfil.

Latin.

1. Ellis, H. O. — Private tuition.
2. Henderson, C. R. P. — Private tuition.

Chemistry.

1. Evans, A. T. — Stationers' Company's School, Hornsey.
2. Wilcox, W. — Eye Grammar School.

Drawing.

1. { Gache, G. — Christian Brothers' College, Gibraltar.
   { Lane, Miss G. — Loreto Convent, Europa, Gibraltar.

Political Economy.

1. { Butler, G. McA. — Tollington Park College, N.
   { Watts, H. — The Grammar School, Penistone.

Shorthand.

1. Toole, F. J. — St. Aloysius' College, Hornsey Lane, N.
2. Smith, F. H. — Private tuition.

Domestic Economy.

1. Cowe, Miss E. G. — Municipal Girls' Secondary School, Devonport.
2. { Ching, Miss H. D. — Municipal Girls' Secondary School, Devonport.
   { Havard, Miss A. M. — Advanced Girls' School, Merthyr Tydfil.
   { Hornsby, Miss I. M. — Municipal Girls' Secondary School, Devonport.
   { Jones, Miss C. — Advanced Girls' School, Merthyr Tydfil.
   { Llewellyn, Miss M. M. — Higher Standard School, Aberdare.
   { Morrell, Miss B. M. — Municipal Girls' Secondary School, Devonport.
   { Tinker, Miss D. M. — The Grammar School, Penistone.

CLASS LIST — BOYS.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic.
al. = Algebra.
b. = Botany.
bk. = Book-keeping.
ch. = Chemistry.
d. = Drawing.
do. = Domestic Economy
du. = Dutch.
e. = English.
f. = French.
g. = Geography.
ge. = German.
geo. = Geology.
gm. = Geometry.
gr. = Greek.
h. = History.
he. = Hebrew.
i. = Italian. *ir.* = Irish.
l. = Latin.
lt. = Light and Heat.
m. = Mechanics.
ma. = Magnetism & Electricity.
ms. = Mensuration.
mu. = Music.
nh. = Natural History.
p. = Political Economy.
ph. = Physiology.
phys. = Elementary Physics.
s. = Scripture.
sc. = Elementary Science.
sh. = Shorthand.
sp. = Spanish.
tr. = Trigonometry.
w. = Welsh.
z. = Zoology.

The small figures [1] *and* [2] *prefixed to names in the Second and Third Class Lists denote that the Candidates were entered for the First and Second Classes respectively.*

In the addresses, Acad. = Academy, C. or Coll. = College, Coll. S. = Collegiate School, Comm. = Commercial, Conv. = Convent, Elem. = Elementary, End. = Endowed, Found. = Foundation, H. = House, Hr. = Higher, Inst. = Institute, Int. = International, Inter. = Intermediate, Poly. = Polytechnic, Prep. = Preparatory, P.-T. = Pupil-Teachers, S. = School, Sec. = Secondary, Tech. = Technical, Univ. = University

FIRST CLASS [or SENIOR].

Honours Division.

Thiemann, W.M. *g.al.tr.m.ms.f.ge.* Highbury High S. for Boys
Evans, A.T. *gm.w.ch.* Stationers' Co.'s S., Hornsey
Watts, H. *s.f.p.* The Gram. S., Penistone
Downes, E.H. King Edward VI Modern S., Macclesfield
Golden, T.L. *f.l.* St. Joseph's Coll., Dumfries
Ginns, J.S. *s.l.* Hawkesyard Coll., Rugeley
Jones, A.F. *f.d.* Gram S., Eccles
Husband, D.I. *s.* St. George's Coll., Weybridge
Duffy, J. *f.* St. Joseph's Coll., Dumfries
Harrison, R.J. *ms.* Stationers' Co.'s S., Hornsey
Verano, L. *f.* Christian Bros.' Coll., Gibraltar
Henderson, C.R.P. *f.l.* Private tuition
Lacy, G.W. University S., Rochester
Heim, G.E. *ge.d.* St. George's Coll., Weybridge
Kendon, D.H. *a.al.gm.tr.* Bethany H., Goudhurst
Bradwell, C.H. *a.* The Gram. S., Penistone
Hogan, E.A. *f.d.* St. Joseph's Coll., Dumfries
Rawling, S.O. *f.* Dunheved Coll., Launceston
Wilcox, W. *ch.* Eye Gram. S.
M'Connachie, G.R. St. Joseph's Coll., Dumfries
Gate, H.L. *f.* Tynemouth School
Carroll, J.A. *s.f.* St. Joseph's Coll., Dumfries
Gerard, R. *s.* Hawkesyard Coll., Rugeley

FIRST CLASS [or SENIOR].

Pass Division.

Chaut, E.V. *a.m.* University S., Rochester
Stokes, G.T. *s.* Newtown S., Waterford
Loufte, H.P. *f.* St. Aloysius' Coll., Hornsey Lane, N.
Toole, F.J. *s.sh.* St. Aloysius' Coll., Hornsey Lane, N.
Russell, E.B. *s.* Newtown S., Waterford
Thomas, H. *ms.* Advanced Boys' S., Merthyr Tydfil
Sunderland, J. *f.* Gram. S., Penistone
Wilson, E.L. Stationers' Co.'s S., Hornsey
Brown, W.H. *ms.* The College, Weston-s.-Mare
Antony, R. *d.* St. George's Coll., Weybridge
Taylor, W.A. *d.* Eye Gram. S.
Darley, W. Hawkesyard Coll., Rugeley
Dalby, J. Gram. S., Eccles
Gales, F.L. Yorkshire Society's S., S.E.
Ross, J.A. St. George's Coll., Weybridge
Tye, A.G. Stationers' Co.'s S., Hornsey
Waugh, J.B. *h.f.* Newcastle Modern S.
Wainwright, O.G. *f.d.* St. Joseph's Coll., Dumfries
Beever, C. Gram. S., Penistone
Naisby, J.V. Argyle H., Sunderland
Butler, G.McA. *p.* Tollington Park College, N.
Kitchin, R. *ms.* St. Joseph's Coll., Norwood
Murphy, M.C. St. Joseph's Coll., Dumfries
Sharp, J.R. *a.* Dunheved Coll., Launceston
Evans, M.M. Advanced Boys' S., Merthyr Tydfil
Sheffield, R.D. Stationers' Co.'s S., Hornsey
Chipperfield, S.J.G. *s.d.* Uxbridge County S.
Ellis, H.O. *f.ge.l.* Private tuition
Eady, B. St. Mary's Coll., Harlow
Edwards, G.O. Stationers' Co.'s S., Hornsey
Camacho, G.S. St. George's Coll., Weybridge
Eccles, E.S. St. Joseph's Coll., Dumfries
Brown, A. Stationers' Co.'s S., Hornsey
Rolston, G.R. Dunheved Coll., Launceston
Smith, A.L. University S., Southport
Teager, W.E. Eye Gram. S.
Butler, H. *d.* St. Joseph's Coll., Norwood
Kelly, F. *s.* St. Joseph's Coll., Dumfries
Lakeman, A.L. *s.f.* Uxbridge County S.
Phillips, B. *ms.* Advanced Boys' S., Merthyr Tydfil
Allan, P. St. Joseph's Coll., Dumfries
Tanner, C. Stationers' Co.'s S., Hornsey
Butcher, R. Gram. S., Penistone
Amos, T. Gram. S., Sale
Collen, F.D. *f.* Christ's Coll., Blackheath
Goad, A.J. *d.* Private tuition
Mizen, W.C. Stationers' Co.'s S., Hornsey
Murciano, R. Christian Bros.' Coll., Gibraltar
Barnes, F.H. *s.* Stationers' Co.'s S., Hornsey
Judge, W.J. *m.* University S., Rochester
Horden, W.F. Richmond H., Handsworth
Moore, J. Gram. S., Penistone
Hudson, F.E. *d.* St. Joseph's Coll., Dumfries
Constantine, H.S. *s.* The Palace S., Bewdley
Mason, R.C.R. Private tuition
Cooke, J. *w.* Private tuition
Mullin, J.C. St. George's Coll., Weybridge
O'Carroll, M.E. St. Joseph's Coll., Dumfries
Higgs, R.D. The Palace School, Bewdley
Haslam, W. Private tuition
Fermie, F.St.C. St. Joseph's Coll., Dumfries
Harrison, H.E. University S., Rochester
Robertson, I.C. *s.* Dunheved Coll., Launceston
Griffiths, H.J. *s.* Bethany H., Goudhurst
Kim Yoo *m.* Eastbourne College
Stapley, C.J. Bethany H., Goudhurst
Brunt, H. St. Joseph's Academy, S.E.
Cockell, C. *s.* University S., Rochester
Kidner, C.H. The High S. for Boys, Croydon
Bell, N.H. *d.* Newtown S., Waterford
Bennett, C.J.F. 57 Lansdowne St., Hove
Gallop, S.G. Yeovil County S.
Keeble, F.H. Dunheved Coll., Launceston
Hughes-Williams, T. *w.* Private tuition
Kelly, B.J. University S., Southport
Bishop, V.A. St. George's Coll., Weybridge
Firth, A.S Gram. S., Penistone
Bedford, F. Gram. S., Penistone
Bray, L. Richmond Hill School
Ewen, W. St. Joseph's Coll., Dumfries
Haynes, J. *d.* Christian Bros.' Coll., Gibraltar
Jones, R.W. *w.* Private tuition
Beecham, T.H. Stationers' Co.'s S., Hornsey
Kilroe, F. St. Joseph's Coll., Dumfries
Bernard, A.S. Brondesbury College
Norman, R.D. *s.* St. George's Coll., Weybridge
Wilkinson, F.W. Melbourne Coll., Anerley
Berry, A.J. Gram. S., Eccles
Catnach, T.B. Newcastle Modern S.
Armstrong, W.H. Gram. S., Seorton
Butchard, R.A. New Coll., Herne Bay
Catling, C. St. Joseph's Academy, S.E.
Meade, J.A. Hawkesyard Coll., Rugeley
Perez, J.M. *s.* St. George's Coll., Weybridge
Walker, T.R. *s.d.* Claughton Coll. S., Birkenhead
Barnes, E.B. Private tuition
Moody, B.C. Mile End H., Portsmouth
Davidson, F.M. Balham Gram. S.
Firth, A. Gram. S., Penistone
Sully, R.A. *d.* Private tuition
Watson, H.T. Bethany H., Goudhurst
Roberts, E.R. Private tuition
Brown, A. The College, Weston-s.-Mare
Crofton, R.L. *s.* Bailey S., Durham
Moore, J.R. Private tuition
Walford, T.J. St. Mary's Coll., Harlow
Warner, P.C. Private tuition

SECOND CLASS [or JUNIOR].

Honours Division.

Keeping, E.S. *e.h.g.a.al.gm.f.lt.ch.d.* Portsmouth Council Secondary S.
Blair, J. *al.gm.ma.ch.* West Leeds High S., Armley
Green, G.G. *al.lt.* Portsmouth Council Secondary S.
Jelliffe, R.E.V. *e.a.lt.ch.* Portsmouth Council Secondary S.
Davies, I.R. *gm.phys.ch.d.* Higher Elem. S., Pentre
Stokes, C.L. *a.al.lt.d.* Portsmouth Council Secondary S.
Schofield, B. *s.g.a.* University S., Southport
Johnson, H.R. *s.al.ch.* Monkton H., Streatham
Clark, L.L. *sp.* St. Joseph's Coll., Dumfries
Brown, R. *a.al.gm.* Yorkshire Society's S., S.E.
Ingle, J.W. *f.* West Leeds High S., Armley
Jutson, G. *s.al.gm.m.* Deacon's S., Peterborough
George, M. *phys.d.* Higher Elem. S., Pentre
Howell, T.W. *ch.d.* Eye Gram. S.
Barkby, H. University S., Southport
Fry, C. *a.al.ch.* Portsmouth Council Secondary S.
Clark, W.J. St. Joseph's Coll., Dumfries
Jacobs, D.A. *he.* Argyle H., Sunderland
Thomas, W.R. *gm.phys.* Higher Elem. S., Pentre
Fisher, H.M. Private tuition
Delbanco, J.R. *al.* University S., Southport
Ludford, R.J. *al.ch.* Portsmouth Council Secondary S.
Sellier, R. *bk.f.* Marist Bros.' Coll., Grove Ferry
Whiteley, A.J. Higher Elem. S., Stalybridge
Wild, B.K.A. *ms.* Higher Elem. S., Stalybridge
Mosely, M.P.M. Worcester Coll., Westcliff-on-Sea
Lillington, G.R. *a.al.* Portsmouth Council Secondary S.
Hanscombe, S.W. *a.ma.* Cambridge & County S. for Boys
Volcan, P. *bk.f.* Marist Bros.' Coll., Grove Ferry
Coutts, H.L.B. Yorkshire Society's S., S.E.
Jenkins, J.R. *gm.ch.* Pencader Gram. S.
Parry, J. *a.* Advanced Boys' S., Merthyr Tydfil
Wynne Williams, J.G. *al.f.* Private tuition
Croke, L. *al.* St. Joseph's Academy, S.E.
Jelfs, C.V. *al.gm.* Gram. S., Penistone
Lewis, H. *s.ch.* Newtown S., Waterford
Bowker, J.S. University S., Southport
Grunwaldt, B.E. *gm.f.* Highbury High S. for Boys
Sadler, A.K. *gm.* University S., Southport
Lewis, D.J.A. *a.f.* Epsom College
Macdonald, W.K. *ch.* University S., Southport
McLellan, H.N. *ch.* University S., Southport
Thomas, W.O. Higher Elem. S., Pentre
Bond, A. *a.* Advanced Boys' S., Merthyr Tydfil
Brown, W. Yorkshire Society's S., S.E.
Thomas, D.R. *g.a.* Private tuition
Agar, H.N.
Bebb, R.H. *a.* Queen Mary's Gram. S., Walsall
Davies, W.J.P. Higher Elem. S., Pentre
Friend, O.F. *d.* Stafford Coll., Forest Hill
Marsden, C.E. *a.* University S., Southport
Norman, A.D. *gm.* Bethany H., Goudhurst
Newboult, W. *a.al.d.* Gram. S., Penistone
Jenkins, R.B. Private tuition
Lazzeri, E.J. St. Joseph's Coll., Norwood
Dotto, Alfred Christian Bros.' Coll., Gibraltar
Mason, R.P.S. *d.* Private tuition
Moylan, F.E. *s.sh.* St. Aloysius' Coll., Hornsey Lane, N.
Buckeridge, W.H. *gm.d.* St. George's Coll., Weybridge
Hope, J. Gram. S., Eccles
Lay, W.R. Eye Gram. S.
Learoyd, C.G. *gr.* Private tuition
McAlpin, K.F. *a.al.* Private tuition
Breese, W.L. *gm.d.* Eye Gram. S.
Ewen, A.S. St. Joseph's Coll., Dumfries
Letty, R.F. *a.* Aske's Haberdashers' Hampstead S., Cricklewood
Peckover, L.E.C. *a.al.* Private tuition
Robson, A.R. Montrose Coll., Streatham Hill
Thomas, T.G. Higher Elem. S., Pentre
Fothergill, W.H. *s.d.* The College, Weston-s.-Mare
Francis, T.R. *gm.phys.* Higher Elem. S., Pentre
Wanless, R.P. Newcastle Modern S.
Davis, P.B. The Philological S., Southsea
Powell, W.E. Wynport H., Brighton
Cade, C.R. Private tuition
Chapman, O.A. Newtown S., Waterford
Davies, C. *d.* Higher Elem. S., Pentre
Robert, E.L. Private tuition

SECOND CLASS [or JUNIOR].

Pass Division.

[1]Tucker, H.G. Stationers' Co.'s S., Hornsey
[1]Bennett, G.H. 57 Lansdowne St., Hove
[1]James, G. Advanced Boys' S., Merthyr Tydfil
[1]Stoddart, T. Dunheved Coll., Launceston
[1]Sharpe, H.N. Stationers' Co.'s S., Hornsey
[1]Dyson, E. Gram. S., Penistone
[1]Bates, C.C. *ms.* Bailey S., Durham
Framingham, F.H. Portsmouth Council Secondary S.

BOYS, 2ND CLASS, PASS—*Continued.*

Preston, R. *d.* Friends' S., Wigton
Sharp, G.R. Newquay College
[1]Stanners, A.E. The Palace S., Bewdley
Webster, T. *bk.* Osborne High S., W. Hartlepool

Elliott, S.R. *d.* University S., Southport
Evelyn, A. Gram. S., Camelford
Featherstone, A.G. Cleave's Endowed S., Yalding
Fletcher, J. *gm.ch.* Friends' S., Wigton
Gardner, G.H. The Drayton Council S., Ealing
Woodhouse, A. Gram. S., Eccles

Bloomfield, A. St. Joseph's Academy, S.E.
Hill, S.F. *ch.* Newtown S., Waterford
Williams, F. Advanced Boys' S., Merthyr Tydfil
Williams, W.J. Higher Elem. S., Pentre

Johnson, F. Eye Gram. S.
Sandercock, R.L. Newquay College
Webster, H.A. *lt.* Portsmouth Council Secondary S.
Workman, W.C. *a.ch.* Southall County S.

Dormer, P.A. *ch.* Newtown S., Waterford
Dotto, Augustine *sp.* Christian Bros.' Coll., Gibraltar
Forbes, J.A. *ch.* Newtown S., Waterford
Hall, H.P. Osborne High S., W. Hartlepool
Kennedy, D.M. *d.* Brighton Gram. S.
Lowndes, A.B. *d.mu.* Private tuition

[1]Chuter, H.A. Dunheved Coll., Launceston
Jones, C.V. Arnold H., Blackpool
Tiber, E.L. University S., Rochester
Wadsworth, M. *a.* Gram. S., Penistone

Iron, F.J. Tudor Hall, Hawkhurst
Jenkins, W.H. Advanced Boys' S., Merthyr Tydfil
Lee, E.A. *gm.* University S., Southport
[1]Nicholls, H. Gram. S., Penistone
Richardson, R.D. West Leeds High S., Armley

[1]Dunford, E.T. Newcastle Modern S.
Hulme, H. Gram. S., Eccles
Long, G.S.B. *g.* Private tuition
Owen, E.W.H. *l.* Rydal Mount S., Colwyn Bay

Davies, D.F. Porth Higher Grade S.
Prichard-Evans, E.A. Private tuition

[1]Beavis, J.H. St. John's Coll., Finsbury Pk.
Chaut, W.E. *al.* University S., Rochester
Clibborn, W.E.B. *s.f.* Linton H., Holland Pk. Avenue, W.
Dukes, W. Yorkshire Society's S., S.E.
Lamont, E.W. University S., Southport

[1]Clifford, P.H. Uxbridge County S.
Powell, H.D. *ma.* Private tuition
[1]Rugeroni, A.C. Christian Bros.' Coll., Gibraltar
Sayce, D.E. Argyle H., Sunderland
Stebbings, H.V. *a.al.f.* Private tuition

Faull, F. St. Ives Gram. S.
Hall, G. Hawkesyard Coll., Rugeley
Holst, W.O. Private tuition
Lynden-Bell, G. Clark's Coll., Chancery Lane, W.C.
Willoughby, E.C. *l.* Ightham Rectory

Edwards, G.E. *f.* Portsmouth Gram. S.
Hinchliffe, E.J. *d.* Gram. S., Penistone
[1]Horabin, F. *d.* High S., Blackpool
Payne, G.J.W. *f.* St. Aloysius' Coll., Hornsey Lane, N.
Robert, V.W. Private tuition
[1]Strike, S.L. Dunheved Coll., Launceston
Williams, R.H. Bishopston Comm. S., Bristol

Dickinson, W.A. *d.* Newcastle Modern S.
Hiller, C.B. St. John's Coll., Brixton
Hollands, W.G. Private tuition
Smith, J.T. Private tuition

Baxter, G.R. West Leeds High S., Armley
Griffin, E. Christian Bros.' Coll., Gibraltar
Parsonage, F.H. Private tuition
Rouget, L.P. St. John's Coll., Brixton
[1]Tyson, C.W. Private tuition

Bate, P.I. St. Joseph's Coll., Dumfries
[1]Clough, A.F. St. Joseph's Coll., Dumfries
Kelly, B.H. St. Joseph's Coll., Norwood
Mackay, T.H. *sp.* St. George's Coll., Weybridge
McEwen, G.F. Private tuition
[1]Milnes, A.H. New Coll., Herne Bay
Wood, W.S.J. *s.* Fartown Gram. S., Huddersfield

Alexander, G. *a.al.gm.* Private tuition
[1]Ashbrook, H.R. Gram. S., Eccles
[1]Pratt, P.C. *f.ch.* Private tuition
Wakefield, P.S. Newtown S., Waterford
Westmorland, A.S. Private tuition

Bado, A.J. *sp.* Private tuition
Barden, F.M. *d.* Gram. S., Penistone
Burton, G.E. *f.* Private tuition
[1]Cope, H. Private tuition
[1]Crowder, A.D. King Edward VI Modern S., Macclesfield
[1]Curson, H.H. Christ's Coll., Blackheath
[1]Gomez, J. Christian Bros.' Coll., Gibraltar
Howard, W. Hawkesyard Coll., Rugeley

Jones, I.R. Porth Higher Grade S.
Kenyon, W. *d.* Gram. S., Penistone
Marlow, C.H. *b.d.* Bethany H., Goudhurst
Spreckley, A. *a.ms.* Eversley S., Stamford

Absalom, D. Porth Higher Grade S.
Berg, C.G. Private tuition
Evans, D.J. Epsom College
Franchy, J.U. St. George's Coll., Weybridge
[1]Gaved, J.L. Dunheved Coll., Launceston
Green, Z.A. *f d.* Private tuition
Kemp, C.H. Montrose Coll., Streatham Hill
Le Couilliard, F.G. The Jersey Modern S., St. Helier
Lloyd, O.O. Pencader Gram. S.
[1]Murdoch, H.H. Newtown S., Waterford
Smith, F.P. Private tuition
Wilson, W.A. St. John's Coll., Brixton
Woodyard, P.H. *al.* Private tuition

Gardiner, B.G. Eastward Ho! Coll., Felixstowe
Lamy de la Chapelle, B. *f.* Marist Bros.' Coll., Grove Ferry
Levers, H.L. Portsmouth Council Secondary S.
Tanner, W.S. *a.* The Philological S., Southsea

Alaux, G. *f.* Marist Bros.' Coll., Grove Ferry
Davies, D.D. Advanced Boys' S., Merthyr Tydfil
Wildsmith, L.F. St. Joseph's Coll., Dumfries
[1]Woolhouse, F.M. Eversley S., Stamford

Gibson, F.A. St. Catherine's Coll., Richmond
Kitson, J. Gram. S., Penistone
Klosz, R.L. Private tuition
Lee, K.H. Gram. S., Penistoue
Willson, O.A. Montrose Coll., Streatham Hill

Givens, M. *s.* St. Joseph's Coll., Dumfries
Harker, C. Private tuition
Moore, H.S.H. *ge.* Private tuition
Mullins, G.E. Private tuition
Peberdy, L.M. Private tuition
Williams, W.J. Advanced Boys' S., Merthyr Tydfil
Wilson, W.F.P. Private tuition

Burnip, H.A. Eye Gram. S.
Cooper, W.H.J. St. Aloysius' Coll., Hornsey Lane, N.
Jones, H.D. Advanced Boys' S., Merthyr Tydfil
[1]Smith, A.C. Bethany H., Goudhurst
Somer, A. Private tuition

Davis, S. Clark's Coll., Chancery Lane, W.C.
Wheldon, G.W. Dulwich College

Kirby, P.E.R. Wynport H., Brighton
Livingston, P.C. Kensington Coaching Coll., Kensington Crescent, W.
Roberts, R.F. *d.* Private tuition
[1]Wigg, J. St. Mary's Coll., Harlow

Broad, T. *a.* Canning St. Council S., Newcastle-on-T.
Cartwright, C.T. Cleave s Endowed S., Yalding
Greene, G.R. Private tuition
Herdman, G. Private tuition
Jones, M.L. Advanced Boys' S., Merthyr Tydfil
Truman, F.C. Private tuition
[1]Wright, J.G. Richmond Hill School

Callow, H.E. *a.* Tudor Hall, Hawkhurst
Fitton, A.J. Southport Comm. Coll.
Kent, C.S. *al.* Hampton Gram. S.
[1]Mate, A.D. Dunheved Coll., Launceston

Clibborn, H.S.B. *f.* Linton H., Holland Pk. Avenue, W.
de Courcy, G.L. Eversley S., Stamford
[1]Gache, G. *d.* Christian Bros.' Coll., Gibraltar
Golden, J.D. St. Joseph's Coll., Dumfries
Hahr, G. Private tuition
Part Shrewsbury School
[1]Shrimpton, G.V. The College, Weston-s.-Mare
Tutt, J.F.D. Private tuition

Balfré, A.A. St. Aloysius' Coll., Hornsey Lane, N.
Davies, H.N. Advanced Boys' S., Merthyr Tydfil
Jones, H.L. Advanced Boys' S., Merthyr Tydfil
Oakley, W. Portsmouth Council Secondary S.
Oue, *a.al.gm.* Felsted School
[1]Smith, H.B. Dunheved Coll., Launceston
Southwell, C.S. Private tuition

Boothroyd, A. *s.* Fartown Gram. S., Huddersfield
Crompton, T. Gram. S., Eccles
Dean, G.S. Grasmere, Appledore, Ashford
Evans, D.G. Pencader Gram. S.
[1]Livingston, J.M. *s.* St. George's Coll., Weybridge
Roberts, O.L.A. Kensington Coaching Coll., Kensington Crescent, W.
Vaurs, L.H. Westgate Coll., Westgate-on-Sea

Cohen, N. *a.* Advanced Boys' S., Merthyr Tydfil
Featherstone, F.M. Christ's Coll., Blackheath
Lawton, F.H. Gram. S., Penistone
Noble, G. Gram. S., Penistone
Ramage, G. St. Joseph's Academy, S.E.
[1]Randall, C.J. New Coll., Herne Bay
Richards, I. Advanced Boys' S., Merthyr Tydfil
Thomas, E. Porth Higher Grade S.
Thornton, F.R. New Coll., Herne Bay
Williams, J.S. Higher Elem. S., Pentre

Davies, A.L. Ightham Rectory
Fletcher, H.J. Portsmouth Council Secondary S.
Harding, G.H. Private tuition
John, C.M. Green Park Coll., Bath
[1]Langford, B. Grammar S., Enfield
Luck, L. Brighton Gram. S.
Pooley, A.C.W. St. Ives Gram. S.
Stephenson, E.L. Bishop's Stortford College
Webb, R.E.S. Portsmouth Gram. S.

[1]Brass, D.J. Bethany H., Goudhurst
[1]Chapman, A.H. Richmond Hill School
Crundall, E.D. *d.* Tudor Hall, Hawkhurst
Kearney, C.S.J. Private tuition
Matthews, F.B. Private tuition
McLauchlan, W. Longwood Gram. S., Huddersfield
O'Shea, D.T. St. Aloysius' Coll., Hornsey Lane, N.
Snoh Private tuition
Wildish, J.N. University S., Rochester

Barker, F. Hawkesyard Coll., Rugeley
[1]Cardona, H. Christian Bros.' Coll., Gibraltar
Cole, H.M. *a.al.gm.* Mile End H., Portsmouth
Coles, F.T. Worcester Coll., Westcliff-on-Sea
Hennessy, C.J. St. George's Coll., Weybridge
Matthews, A.J. Porth Higher Grade S.

Addy, G.E. Gram. S., Penistone
Byrne, J.G. St. Joseph's Coll., Dumfries
Chipulina, J. *d.* Christian Bros.' Coll., Gibraltar
Clegg, J. Ashland High S., Wigan
Mace, C.A. University S., Rochester
Newman, A.L. Private tuition
Parkes, H.P. Dulwich College
[1]Perkin, L.N. Dunheved Coll., Launceston
Rust, E. Gram. S., Scorton
Simpson, K.S. Private tuition
Stout, J.A. Friends' S., Wigton

[1]Briggs, H. Gram. S., Penistone
De la Cruz, A. *sp.* St. Joseph's Coll., Dumfries
Farnham, W.E. Brighton Gram. S.
Flanagan, R. St. Joseph's Academy, S.E.
Gaunt, J.D.N. Gram. S., Redditch
Holgreaves, F.W. Private tuition
Pennant, G. St. Mary's Hall, Cardiff
[1]Smith, F.H. *sh.* Private tuition

[1]Dotto, L. Christian Bros.' Coll., Gibraltar
Hill, S. Arnold H., Blackpool
Morris, L.A. Old College S., Camarthen
Parry, H.R. School of Commerce, Chester
[1]Platt, C.E. Brighton Gram. S.
Sissons, R.E. Private tuition

Brook, G.W. *s.* Fartown Gram. S., Huddersfield
Catnach, C.B. Newcastle Modern S.
Cunningham, A.P. Bethany H., Goudhurst
Heads, P. Newcastle Modern S.
Henson, C.J. St. George's Coll., Weybridge
Hirst, H.D. *gm.* Private tuition
Johnson, C.R. *f.* Private tuition
Miller, A.D. Private tuition
Welch, H. Gram. S., Eccles

Allwork, H.J. *a.* London Coll., Holloway Rd., N.
Bishop, A.W. *d.* Tudor Hall, Hawkhurst
Davies, C.
Griffiths, O. Advanced Boys' S., Merthyr Tydfil
Matthews, G.T. Private tuition
[1]Morton, W.O. Private tuition
Pearce, D.G. Dulwich College
Pritchard, J.O. New Coll., Herne Bay

Barrett, T.S. Pencader Gram. S.
Boucher, A.A.J. *sh.* St. Aloysius' Coll., Hornsey Lane, N.
Lawrence, G.R. Epworth Coll., Rhyl
Lumley, H.Y. Advanced Boys' S., Merthyr Tydfil
Shanley, G.H.A. St. Joseph's Coll., Dumfries
[1]Tillott, H.L. Private tuition

Anderson, F.W.R. St. George's Coll., Weybridge
[1]Baldwin, E.W.M. Private tuition
Byers, J.A. Private tuition
Durante, B. Christian Bros.' Coll., Gibraltar
Holtom, A.L. *d.* Edgbaston Acad., Birmingham
Kamchai, *al.* Private tuition
[1]King, A.G. Private tuition
[1]Lüttkemeier, E.R.P. *ge.* Private tuition

Minvalla, E.J.P. Sholing Coll., Woolston
Pereira, H.M. Ightham Rectory
Simmons, H.O. The Hermitage S., Grimsargh
Stevens, D.A. Balham Gram. S.

Kya, Ba *al.* Private tuition

Avery, A.E.H. Stafford Coll., Forest Hill
Ayrton, W. *d.* Private tuition
Blake, F.G. Ealing Gram. S.
Cockburn, H.S. Bedford Gram. School
Gubbins, E.J. St. Aloysius' Coll., Hornsey Lane, N.
Jones, W.E. *gm.* Pencader Gram. S.
[1]Kinsey, W.H. Private tuition
Lynch, W. *al.* Private tuition

Coen, C.M. Keyford Coll., Frome
Harris, J.A. Queen's Coll., Taunton
McIlroy, A.J. Dulwich College

Bishop, E.L. Private tuition
Donnelly, T.G. St. Joseph's Coll., Dumfries
Gooch, R.F. New Coll., Herne Bay
Light, O.F. The Philological S., Southsea
Markham, G.H. Private tuition
Rigby, F.J. Willow H., Walsall
Rowden, E.E. New Coll., Herne Bay
Rowland, J. *g.* Private tuition

[1]Goodman, F.C. Private tuition
Johnson, R. Christ Church Hr. Elem. S., Southport
Jones, G.F. Gram. S., Penistone
[1]Jones, H. Private tuition
Jones, M.I. Advanced Boys' S., Merthyr Tydfil
Kenward, H.L. Tudor Hall, Hawkhurst
Robinson, G.C. Eastbourne College
Smith, K.M. Dulwich College
[1]Swinscow, R.T. Private tuition

Allen, G.M.H. Private tuition
Chown, H. Private tuition
Cooke, E.L. Victoria Tut. Coll., Buckingham Palace Rd.
[1]Deacon, F.C. *d.* Kelvin Coll., Liverpool
Dutton, C.A. Hawkesyard Coll., Rugeley
Hammond, W.E. University S., Rochester
Heather, T.H. Newtown S., Waterford
Huggett, F.G. Fartown Gram. S., Huddersfield
James, E. Hr. Standard S., Pengenlan, Mountain Ash

Bartlett, J.S. St. John's Coll., Brixton
Gill, L. St. Olave's Gram. S., S.E.
[1]Oakes, B.W. Private tuition
Reynolds, W.R. Newtown S., Waterford
Thomas, T.F. Tutorial Coll., Penarth
Vigo, J.D. St. Leonards, Great Malvern
White, G.R. Lord Weymouth's Gram. S., Warminster
Wilkins, C.E. *gm.* Private tuition

Fisher, H.V. Blundellsands H., Liverpool
Girling, F.V. Eastward Ho! Coll., Felixstowe
Greville, F.W. New Coll., Herne Bay
Illingworth, N.
Lever, W.K. Private tuition
Morgan, D.B. The College, Weston-s.-Mare
Rees, I. Pencader Gram. S.
Rowlands, F.G.J. Private tuition
Traise, E.F. Eversley S., Stamford
Trollope, L.E.A. Private tuition

[1]Berlandina, C.H. Private tuition
Gibson, E.E. Private tuition
Stewart, S.O. Private tuition
Sutcliffe, J.G.W. Private tuition

Beringer, B. St. Boniface's Coll., Plymouth
Gadsby, O.S. Queen Mary's Gram. S., Walsall
Hope, W.K.T. Private tuition
Iron, C.S. Tudor Hall, Hawkhurst
Neal, H.B. Bridlington Gram. S.
Pfaff, E.R. *mu.* Private tuition
[1]Piper, C.H. Bethany H., Goudhurst
Roberts, J.T. Pencader Gram. S.
Schneider, P. Marist Bros.' Coll., Grove Ferry
[1]Smyth, B.B.B. Private tuition
Spencer, W. *gm.* Council Secondary S. for Boys, Halifax
Tobin, E.T. St. Joseph's Coll., Norwood

Hatton, W.D. Private tuition
Hunt, P.B. The College, Weston-s.-Mare
[1]Lewis, R.J. Private tuition
O'Brien, M.H. St. George's Coll., Weybridge
Perry, L.E. Willow H., Walsall
Purdy, H. Gram. S., Eccles
Sandford, E.W. Eversley S., Stamford
White, B.B. Beverley S., Barnes

Freeman, J.C. Private tuition
Ogden, J.H. St. Joseph's Coll., Dumfries
Roberts, H.J.W. St. George's Coll., Weybridge
Rosenberg, L. Private tuition
Wilkinson, J.R. Gram. S., Scorton

Brooke, B. *ch.* Archbishop Holgate's S., York
Jones, W. Gram. & Coll. S., Carnarvon
Sandford, J.H.E. Private tuition
White, G. Newquay College
Woods, A.A. Newtown S., Waterford

BOYS, 2ND CLASS, PASS—*Continued.*

Cull, A.F. Magdala Acad., Landport, Portsmouth
Griffiths, E.H. Pencader Gram. S.
[1]Muir, P. Private tuition
Scott, A.G. *d.* Portland Coll., Chiswick
Tegetmeier, E.B. Private tuition
Withers, S.A. Private tuition

Etherington, E.T. St. Aloysius' Coll., Hornsey Lane, N.
Gillard, A. Treherbert Boys' S.
Griffiths, R.G. Private tuition
Hawksley, R.G. University S., Southport
Roberts, C.R. Hillmartin Coll., Camden Rd., N.W.
[1]Trappes, J.H. St. George's Coll., Weybridge

[1]Dingley, W. Dunheved Coll., Launceston
Glendening, V.H. Arlington Villa S., Brighton
Marshall, H. Gram. S., Eccles
McCallion, F.M. St. Joseph's Coll., Dumfries
Moore, E.L. Newcastle Modern S.
Temple, B.R.
Williams, W.R. Tutorial Coll., Penarth
Wilson, S.W. Friends' S., Wigton

Bryant, E.H. Private tuition
[1]Morgan, W. Private tuition
Pearman, J.C. The Palace S., Bewdley

Barrett, C.F.M. Tutorial Coll., Edinburgh
Brown, C.C.F. Taplow Gram. S.
Croft, J.P. *d.* Private tuition
Forbes, A.C. Newtown S., Waterford
Jones, J.P. Pencader Gram. S.
Joues, T.H. Nelson S., Wigton
Shaw, J.S. Private tuition

Bradbury, G.L.W. Willow H., Walsall
Heath, C. *gm.* Private tuition
Hedges, W.H. Malvern College
Lee, P.M. Mt. Radford S., Exeter
McKiddie, D. Private tuition
Reekes, A.T. St. Peter's Choir S., S.W.
Seaforth, E.A. *d.* St. Joseph's Coll., Dumfries

Hilton, R. Grove H., Highgate
Lamb, A.R. Friends' S., Wigton
Marsh, B.C. Richmond H., Handsworth

Gowar, L.R. Bethany H., Goudhurst
Holland, E.A. St. Joseph's Coll., Dumfries
Latimer, R.C. Private tuition
Laver, F.K. *d.* New Coll., Herne Bay
Perkin, N. Private tuition
Weeks, G.G. Brondesbury College

Bridgman, L. *d.* Cambridge H., Camden Rd., N.
Brooks, N.K. Dulwich College
Dickinson, R.F. Eversley S., Stamford
May, F.C. Bethany H., Goudhurst
Nock, H.S. The Palace S., Bewdley
[1]Richards, E.I. Old College S., Carmarthen
Ridley, R.E. Montrose Coll., Streatham Hill
Taylor, G.C. The Palace S., Bewdley

Castle, W.F. *ge.* Gram. S., Wellingborough
Farr, D. Porth Higher Grade S.
Healy, J.P. Kensey, Launceston
Hitchcock, C.G. Archbishop Holgate's S., York
Hutchings, W.R. The Philological S., Southsea
Morales, H. Christian Bros.' Coll., Gibraltar
Watson, K.M. Chorlton-cum-Hardy Gram S.

Carleton, K.O'N. Bethany H., Goudhurst
Hoye, C.S. Private tuition
Jones, E.J. Old College S., Carmarthen
Lander, W. *gm.* Private tuition
Marr A. Friends' S., Wigton
Shaw, G.L. Clark's Coll., Chancery Lane, W.C.
Wood, N.H. Municipal Secondary S., Bolton

Cooper, W.S.G. Montrose Coll., Streatham Hill
Dodd, W.E. Private tuition
Leppard, P.H. Warner's Coll., Richmond
Pirrie, C.A. Private tuition
Sandiforth, E. Boys' High S., Barnsley

Appleby, N.G. Central High S., Leeds
Hallett, L.R. Private tuition
Harrop, J. Private tuition
Henson, G.P. *gm.* Eversley S., Stamford
Holmes, P.S. Grove H., Highgate
Morton, H. Gram. S., Eccles
Robbins, F. Private tuition
Urwin, G.F. Private tuition
[1]Williams, I.B. Pencader Gram. S.

THIRD CLASS.

Honours Division.

Jones, D.T. *e.h.g.a.al.gm.ms.* Pencader Gram. S.
Gonzalo, B. *a.al.sp.* St. Joseph's Coll., Dumfries
Roussel, F. *f.* St. Joseph's Coll., Dumfries

Agnew, A.P. *s.e.a.al.gm.* University S., Southport
Arrowsmith, R.W. *a.gm.d.* Argyle H., Sunderland

Phillips, W.F.C. *a.d.* Grove H., Highgate
Wood, H.L. *s.e.h.al.gm.* University S., Southport

Rimbald, A. St. Aloysius' Coll., Hornsey Lane, N.
Williams, T.B. *h.g.a.al.* Higher Elem. S., Pentre
Cortina, J.J. *sp.* St. Aloysius' Coll., Hornsey Lane, N.

Guillier, P.M.E. *f.* St. Aloysius' Coll., Hornsey Lane, N.
Vives, D. *e.a.f.sp.* Christian Bros.' Coll., Gibraltar
Yates, B.W. *s.e.a.* Newcastle Modern S.

Comyn, M. *g.a.* St. Joseph's Academy, S.E.
Swarbrick, F. *e.a.al.f.* St. Joseph's Coll., Dumfries

Morpeth, S. *e.a.al.f.* Newcastle Modern S.
Bustinza, J. St. Joseph's Coll., Dumfries
Murphy, B. *a.al.* St. Joseph's Academy, S.E.

Ellison, B. *e.a.al.* St. Joseph's Coll., Dumfries
Walther, H.W. *e.a.al.ge.* Newcastle Modern S.

Peacock, T.W. *a.d.* Osborne High S., W. Hartlepool
Pimienta, J. *a.sp.* Christian Bros.' Coll., Gibraltar

Facio, F. *e.a.sp.d.* Christian Bros.' Coll., Gibraltar
Gibbs, C.E. *a.al.* University S., Southport
Jones, J. *e.a.al.* St. Joseph's Academy, S.E.
Lance, A.W. *s.a.al.* Montrose Coll., Streatham Hill
Verauo, M. *a.sp.d.* Christian Bros.' Coll., Gibraltar

Flynn, T. *e.* St. Joseph's Coll., Dumfries
Miguet, G. Marist Bros.' Coll., Grove Ferry
Turner, C.B. *a.d.* University S., Rochester

Hakim, J. *a.he.* Townley Castle S., Ramsgate
Kimpster, W.C. *e.a.al.f.* Newcastle Modern S.
Spark, A.J. *e.* Argyle H., Sunderland

Chew, S. *al.* St. Joseph's Coll., Dumfries
Olmos, F. *sp.d.* Salesian S., Battersea
Terry, C.D. *g.* The College, Weston-s.-Mare
Travis, G.N. *e.a.al.* University S., Southport
Wallington, A. *a.* St. Joseph's Coll., Dumfries
Watson, G. *e.a.* St. Joseph's Coll., Dumfries

Evans, H.J. *gm.* Higher Elem. S., Pentre
Hodge, H. *al.* St. Joseph's Coll., Dumfries
Jones, W.P. *e.a.al.* Higher Elem. S., Pentre
Lavoisier, A.M. *f.d.* St. Aloysius' Coll., Hornsey Lane, N.
Richards, I.L. *a.w.* Porth Higher Grade S.

Arkle, N.A. *a.al.* Newcastle Modern S.
Duncan, W. *e.a.* Newcastle Modern S.
Griffiths, I.J. *a.al.* Higher Elem. S., Pentre
Hurst, J. *e.a.* St. Joseph's Coll., Dumfries
Tobitt, L.E. *s.e.* Valentia H., S. Norwood

Evans, W. *a.* Porth Higher Grade S.
Hewitt, S. *a.al.* St. Joseph's Coll., Dumfries
Lewis, H. *a.d.* Barry Sec. & Comm. S.
Morgan, J.K. *s.a.al.* Grove H., Highgate

Davies, W.H. *a.al.d.* Higher Elem. S., Pentre
Debenham, W.W.J. *a.* St. Aloysius Coll., Hornsey Lane, N.
Dyke, N.F. *a.* Higher Elem. S., Pentre
Eayrs, W.I. *a.* Eversley S., Stamford

Batchelor, C.E.R. *e.a.* Osborne High S., W. Hartlepool
Grayson, R. *gm.* Southport Comm. Coll.
Marks, C.F. *a.l.* Porth Higher Grade S.
Smith, F. *a.* St. Joseph's Coll., Dumfries

Casola, A. *sp.d.* Christian Bros.' Coll., Gibraltar
Charles, E.D. *a.al.* Newcastle Modern S.
Edwards, M. *a.* Advanced Boys' S., Merthyr Tydfil
Hodge, T. St. Joseph's Coll., Dumfries
McManus, R.W. *a.* St. George's Coll., Weybridge
Perrin d'Aguel, L. Marist Bros.' Coll., Grove Ferry
Proctor, R.F. *al.* Victoria S., Heaton
Wright, A.J. *e.* St. Joseph's Coll., Dumfries

Burch, J.D. *a.* The College, Weston-s.-Mare
Eglington, D.C. *a.d.* St. George's Coll., Weybridge
Elliot, F. *al.* Victoria S., Heaton
Hepworth, F. *s.* University S., Southport
Olmos, R. *a.sp.* Salesian S., Battersea
Phillips, G.T. *a.* Advanced Boys' S., Merthyr Tydfil

Bachelet, H. *f.d.* Marist Bros.' Coll., Grove Ferry
Harte, J. *e.* St. Joseph's Coll., Dumfries
Snowdon, T. *a.* Friends' S., Wigton

THIRD CLASS.

Pass Division.

[2]Palmer, J. Friends' S., Wigton
[2]Partington, L.C. *sp.* St. George's Coll., Weybridge
[2]Preece, J.S. The Palace S., Bewdley
[2]Price, W.M. Advanced Boys' S., Merthyr Tydfil
[2]Wilson, E.T.

[2]Miller, C.G. University S., Rochester
[2]Peile, H.A. Friends' S., Wigton
[2]Dean, H.R. Gram. S., Eccles

[2]Allwood, J. Bethany H., Goudhurst
[2]Winter, L.P. St. George's Coll., Weybridge
[2]Unsworth, J. St. Joseph's Coll., Dumfries
[2]Hughes, C.R. St. George's Coll., Weybridge
[2]Crook, F.W. Christ's Coll., Blackheath

[2]Toole, R.W. St. Aloysius' Coll., Hornsey Lane, N.
[2]Ward, J.F. Grove H., Highgate

[2]Doland, C.A. St. Aloysius' Coll., Hornsey Lane, N.
McLean, R.D.
[2]Pickering, W. *mu.*
[2]Strong, C.M. St. Aloysius' Coll., Hornsey Lane, N.
[2]Hoskins, B.J.J. St. Aloysius' Coll., Hornsey Lane, N.

[2]Rutter, F.W. Bailey S., Durham
[2]Warren, J.A. Montrose Coll., Streatham Hill

Browue, A.T. *al.* Newcastle Modern S.
[2]Hancock, R. Stafford Coll., Forest Hill
Hibbert-Smith, J.C. *a.l.* Bailey S., Durham
McKeever, S. *d.* St. George's Coll., Weybridge
Roberts, G.H. *a.* Endcliffe Coll., Sheffield
[2]Sacksen, J.A. St. George's Coll., Weybridge

Bauscher, A.V. *ge.* Hillmartin Coll., Camdeu Rd., N.W.
[2]Bedford, W. The Palace S., Bewdley
Evans, I. *a.* Higher Elem. S., Pentre
Hardiman, M. *a.al.* St. Joseph's Coll., Dumfries
O'Herlihy, G. *e.a.* Salesian S., Battersea
Remington, W. *a.* St. John's Coll., Brixton
Thomas, A. *a.al.* Advanced Boys' S., Merthyr Tydfil

Burroughs, E. *a.d.* Barry Sec. & Comm. S.
[2]Clark, A. Bethauy H., Goudhurst
[2]Cook, J.W. University S., Southport
[2]Davies, J.I. Pencader Gram. S.
[2]Dodson, J. St. Joseph's Academy, S.E.
[2]Douglas, H.M. Hawkesyard Coll., Rugeley
Lamont, A. *a.d.* St. Joseph's Coll., Dumfries
Walther, H.T. *a.al.ge.* Newcastle Modern S.
[2]Walton, E. University S., Southport

[2]Conrad, A.G. St. Joseph's Coll., Dumfries
Evans, F.R. New Coll., Herne Bay
Lloyd, W. *a.d.* Barry Sec. & Comm. S.
[2]Mariano, G.W. St. Boniface's Coll., Plymouth
[2]Mortimer, W.C. St. Aloysius' Coll., Hornsey Lane, N.
[2]Stanners, E.C. The Palace S., Bewdley
Vize, D. *a.* St. Aloysius' Coll., Hornsey Lane, N.
Walker, E. *e.al.* Gram. S., Eccles
Watchorn, A.H.R. *a.* Eversley S., Stamford
West, A.G. *s.a.* Montrose Coll., Streatham Hill

Chaston, J. *a.* Newcastle Modern S.
Davies, D.J. (2) *al.gm.* Pencader Gram. S.
Fothergill, S.J.R. *e.* The College, Weston-s.-Mare
Hickman, J.G. *e.a.* Tudor Hall, Hawkhurst
Milburn, A. Argyle H., Sunderland
[2]Minto, R.B. Friends' S., Wigton
Rugeroni, A.I. Christian Bros. Coll., Gibraltar
[2]White, A.J. St. Dunstan's Coll., Margate
[2]Wilkes, L.O. Gram. S., Redditch

[2]Banks, P. Bethany H., Goudhurst
Conrieu, A. Marist Bros.' Coll., Grove Ferry
Ewbank, J.S. *s.a.* Montrose Coll., Streatham Hill
Gavin, L. *a.* St. Aloysius' Coll., Hornsey Lane, N.
Gormley, A. *a.* St. Joseph's Coll., Dumfries
Grant, K. *a.* Southend Gram. S.
[2]Jones, F.T. Tudor Hall, Hawkhurst
Kaltenbach, F. St. Aloysius' Coll., Hornsey Lane, N.
[2]Marshall, C.R. Bethany H., Goudhurst
Miller, C. *s.a.* Salesian S., Battersea
[2]Reardon, J.J. St. Joseph's Coll., Dumfries
Sunnucks, H.B. *e.* Eastward Ho! Coll., Felixstowe
Townsend, C.F. The College, Weston-s.-Mare

Batchelor, A.W. Osborne High S., W. Hartlepool
[2]Caird, D.R. St. Dunstan's Coll., Margate
De Lacey, J.M. Newcastle Modern S.
Mozet, R. Marist Bros.' Coll., Grove Ferry
Ranken, J.S. Argyle H., Sunderland

Vieil, M. *a.* Marist Bros.' Coll., Grove Ferry
[2]Weaver, R.A. Rusholme High S., Manchester
Welch, J.F. *d.* St. Joseph's Coll., Dumfries
Wheatley, W.A. *a.* Gram. S., Scorton

Bailey, W.G. *e.* Montgomery Coll., Sharrow, Sheffield
Davies, H.S. Higher Elem. S., Pentre
[2]Fermie, A.N. St. Joseph's Coll., Dumfries
[2]Guitta, I.M. Bethany H., Goudhurst
Hanne, G.B. St. George's Coll., Weybridge
James, J.E. *a.* Higher Elem. S., Pentre
Preston, J. *a.* Friends' S., Wigton

Boyle, J.I. St. Joseph's Coll., Dumfries
Byrne, B.G. *a.* St. Joseph's Coll., Dumfries
Byrne, S. *e.* St. Joseph's Coll., Dumfries
[2]Griffiths, H.J. St. George's Coll., Weybridge
Hassan, S. *a.* Townley Castle S., Ramsgate
[2]Honer, A. St. Boniface's Coll., Plymouth
Maddison, R. *a.* Barry Sec. & Comm. S.
[2]McDermott, L. St. Joseph's Academy, S.E.
Reardon, J. *d.* St. Joseph's Coll., Dumfries
[2]Saunders, C.R.S. Ealing Gram. S.
Sawyer, W. *a.* Southport Comm. Coll.

Burgess, S.C. *a.* Bethany H., Goudhurst
Chard, H.E. The College, Weston-s.-Mare
Chaston, H. *a.* Newcastle Moderu S.
Stephens, R. Newquay College
Windsor, L. *a.* Barry Sec. & Comm. S.

[2]Boniface, R.J. Bethany H., Goudhurst
Carr, F. St. Joseph's Coll., Dumfries
Chiapponcelli, D. Salesian S., Battersea
Da Cunha Coutinho, R. Marist Bros.' Coll., Grove Ferry
Kennedy, H.D. Clapham Gram. S.
Lyons, M. St. Boniface's Coll., Plymouth
McLaughlin, C. St. Aloysius' Coll., Hornsey Lane, N.
[2]Plunkett, H.J. St. Aloysius' Coll., Hornsey Lane, N.
Rayner, E.C. St. Aloysius' Coll., Hornsey Lane, N.
Stonham, G.E. Bethany H., Goudhurst
Walters, T. *a.* St. Aloysius' Coll., Hornsey Lane, N.
[2]Watkins, T. Taunton School
Watson, R. St. Joseph's Academy, S.E.

Bradley, M.E. St. George's Coll., Weybridge
Buckland, P.W. *e.a.* Clapham Gram. S.
Jarvis, H.S. *a.* Eversley S., Stamford
Latham, P.A. Fauntleroy, St. Leonards-on-Sea
Mackenzie, A.D.F. Lindisfarue Coll., Westcliff-on-Sea
McCall, V. *s.* Salesian S., Farnborough
[2]Mullin, S. Bethany H., Goudhurst
[2]Newson, F.N. Eastward Ho! Coll., Felixstowe
Shaw, T.A. *e.al.* Newquay College
Taylor, H.M. *a.* St. Aloysius' Coll., Hornsey Lane, N.
Thom, E.M. *e.a.* Montrose Coll., Streatham Hill
[2]Wilson, N. New Coll., Herne Bay

[2]Atkins, A.J. Highfield S., Chertsey
Boursot, C.C.H. *a.* Richmond Hill School
Bowker, J.A. University S., Southport
Campbell, F. *a.* St. Joseph's Coll., Dumfries
Ewen, A. *a.* St. Joseph's Coll., Dumfries
[2]Flynn, M.F. St. Joseph's Coll., Dumfries
Gonzalez y Diez, L. *f.* Grove H., Highgate
Graves, F.G. *a.al.* Bethany H., Goudhurst
[2]Hall, G.E. Clifton Coll., North Shore, Blackpool
Jakins, W.V. Lindisfarne Coll., Westcliff-on-Sea
Powell, P. *h.a.* St. Joseph's Academy, S.E.
[2]Thomas, J.E. Porth Higher Grade S.
Woodman, D. *a.* St. Joseph's Coll., Dumfries

Abey, H.W. Argyle H., Sunderland
Bate, B. St. Joseph's Coll., Dumfries
Batham, A. Walsall Comm. Coll.
Coles, F. *e.f.* St. Joseph's Coll., Norwood
Davies, M. Porth Higher Grade S.
[2]Dutneall, N.N. The Drayton Council S., Ealing
Jones, J.V. *a.* Porth Higher Grade S.
[2]London, W. Mile End H., Portsmouth
[2]Mercer, T.H. Private tuition
Mould, G.A. St. Joseph's Coll., Dumfries
[2]Nicholls, H.F. Cromwell High S., Putney

[2]Coyle, T. Hawkesyard Coll., Rugeley
Dobinson, B. *a.d.* St. Aloysius' Coll., Hornsey Lane, N.
Gigli, A. *a.* St. Aloysius' Coll., Hornsey Lane, N.
[2]Gray, S.B. Bethany H., Goudhurst
Lennox, W.G. St. Joseph's Coll., Dumfries
Maguire, J. *d.* St. Aloysius' Coll., Hornsey Lane, N.
Mann, R.F. *d.* Arundel H., Surbiton
[2]Martin, J.N. Dunheved Coll., Launceston
Morrison, S. Newcastle Modern S.
Muir-Smith, J.E. *a.* Grove H., Highgate
[2]Müller, A.U. Hillmartin Coll., Camden Rd., N.W.
Rowse, E.A. *e.al.* Newquay College
Swarbrick, H. *a.* St. Joseph's Coll., Dumfries

BOYS, 3RD CLASS, PASS—*Continued.*

²Berry, R.B. Gram. S., Eccles
Coulthart, H. Newtown S., Waterford
²Edwards, W.H. Taunton School
²Holland, J. Gram. S., Eccles
Jones, L. St. Joseph's Coll., Norwood
Loûfte, M. St. Aloysius' Coll., Hornsey Lane, N.
²McCorry, A.C. St. George's Coll., Weybridge
²Nicholas, D.C.V. Oxford H., Junction Rd., N.

Baines, C. St. George's Coll., Weybridge
²Bell, F.F. St. George's Coll., Weybridge
²Clifton, R.P. Tudor Hall, Hawkhurst
²McDonald, C.G. St. Aloysius' Coll., Hornsey Lane, N.
Richards, L.C. *d.* St. Aloysius' Coll., Hornsey Lane, N.

Blackmore, J. Stafford Coll., Forest Hill
²Bolland, G.E. Gram. S., Scorton
Carey, G. *a.* Friends' S., Wigton
Carmichael, J.K. *a.al.* Ightham Rectory
Carter, S.R. *al.* New Coll., Herne Bay
Colvin, D. St. Aloysius' Coll., Hornsey Lane, N.
²Corbett, I.J. Kensey, Launceston
Dean, M. Bailey School, Durham
Doubleday, H. *s.a.* Salesian S., Battersea
Eyre, B.J. *a.* St. George's Coll., Weybridge
Howorth, R. St. Joseph's Coll., Dumfries
Jacob, H. Marist Bros.' Coll., Grove Ferry
Maher, V.C. *e.* St. Joseph's Coll., Dumfries
²May, F.E. Bethany H., Goudhurst
Wood, H.G. *e.* Fartown Gram. S., Huddersfield

Carleton, F. Southend Gram. S.
²Diesch, H.F.B. St. Aloysius' Coll., Hornsey Lane, N.
Escott, H.J. Porth Higher Grade S.
²Foster, J.B. St. Joseph's Coll., Dumfries
²Hornsby, J.E.C. Towcester School
Lewis, D. *a.* Advanced Boys' S., Merthyr Tydfil
Lima, G. St. Boniface's Coll., Plymouth
Marriott, A. *a.* Gram. S., Eccles
Mooney, D. *a.* St. George's Coll., Weybridge
Morris, W.J. *l.* Porth Higher Grade S.
Peile, T.W. *h.* Friends' S., Wigton
Sage, J.H. Grove H., Highgate
²Stobbs, T. Canning St. Council S., Newcastle-on-T.
²Whittingham, H.L. Bethany H., Goudhurst

Abraham, W.H. Porth Higher Grade S.
Broughall, R.E.B. The Hermitage S., Grimsargh
Capelle, A.G. *f.* Taplow Gram. S.
Carney, H.A. Argyle H., Sunderland
Ferens, H.C. Bailey School, Durham
Griffiths, W.G. Taunton School
Johnson, J. *a.* St. Aloysius' Coll., Hornsey Lane, N.
Lincoln, A.H.J. Eversley S., Stamford
²Nicholas, A.A. Victoria Tut. Coll., Buckingham Palace Rd.
²Ollis, L.C.J. Mile End H., Portsmouth
²Pye, S.E. St. Joseph's Coll., Dumfries
Rouilly, J. *a.f.* St. George's Coll., Weybridge
²Waight, L. Mile End H., Portsmouth

Boles, F. St. Joseph's Coll., Dumfries
Curr, E.M. *a.* St. Joseph's Coll., Dumfries
²Davey, A.R. Taunton School
²Dickinson, A. Endcliffe Coll., Sheffield
Dodds, J. *a.* Newcastle Modern S.
²Evans, D.J. (A) Old College S., Carmarthen
²Findlay, C.O. Taunton School
²Flanagan, G.A. Cambridge H., Camden Rd., N.
²Gonzalez, R. *sp.* Salway Coll., Leytonstone
Hunter, S.H. *a.* Osborne High S., W. Hartlepool
Kornweibel, T.F. *ge.* St. George's Coll., Weybridge
Preston, G.E. Modern S., Eccles
Richards, H. Barry Sec. & Comm. S.
²Schwabe, C. Tudor Hall, Hawkhurst

Bertuchi, C. *sp.* Christian Bros.' Coll., Gibraltar
Brinkman, A.J. St. Aloysius' Coll., Hornsey Lane, N.
Hawke, S. *d.* Private tuition
²Johnson, R. St. Dunstan's Coll., Margate
²Kemp, J.F. St. Joseph's Coll., Dumfries
Moleukamp, C.F.F. *s.* Montrose Coll., Streatham Hill
²Petty, H. St. Mary's Hall, Cardiff
²Scanlan, J.W. Hillmartin Coll., Camden Rd., N.W.

Frost, N.T. Stafford Coll., Forest Hill
Garcia, F. St. Joseph's Coll., Dumfries
²Gelli, A.A. *d.* St. Aloysius' Coll., Hornsey Lane, N.
Harcombe, E.T. Porth Higher Grade S.
Hutton, L. Christian Bros.' Coll., Gibraltar
²Kelly, J. St. Joseph's Coll., Dumfries
Moxon, C.S. *s.* Fartown Gram. S., Huddersfield
Potter, J. The Hermitage S., Grimsargh
Schilling, G.N. *d.* Eastward Ho! Coll., Felixstowe
²Vanoni, F.H. Ealing Gram. S.

Bantock, E.G. St. George's Coll., Weybridge
Battye, H. *a.d.* Gram. S., Scorton
Craig, G.R. Eversley S., Stamford
Featherstone, E.V. Osborne High S., W. Hartlepool
Flanagan, A. *e.* St. Joseph's Coll., Norwood
²Potter, A.B. Portland Coll., Chiswick
Price, I. Advanced Boys' S., Merthyr Tydfil
Sinclair, G. St. Joseph's Coll., Dumfries

Ayris, W.L. The Douglas S., Cheltenham
Chapman, F.W. Newtown S., Waterford
Fraser, D. Barry Sec. & Comm. S.
Gowers, H. St. Joseph's Academy, S.E.
Grindey, J.W. Tankerton Coll., Tankerton-on-Sea
Hetherington, W. Friends' S., Wigton
Lewin, C.G.E.K. *d.* Lindisfarne Coll., Westcliff-on-Sea
Nixon, R.J. Moutrose Coll., Streatham Hill
Noakes, E. Friends' S., Wigton
²Wallace, K. Newcastle Modern S.

²Adamson, P.B. New Coll., Herne Bay
Bradley, D.J. *a.* University S., Rochester
Butler, L. St. Joseph's Coll., Norwood
Cockrell, A.N. University S., Southport
Eccles, J.F. St. Joseph's Coll., Dumfries
²Grosfils, A.W. St. Aloysius' Coll., Hornsey Lane, N.
Heunion, C.F. *ge.* St. George's Coll., Weybridge
Johnson, T.R. Southport Comm. Coll.
²Leathlean, B. Taunton School
Nicholson, W.I. *g.* Tynemouth School
O'Brien, W. St. Joseph's Coll., Dumfries
Pitt, B.E. *a.* Eversley S., Stamford
Sheldon, E. Willow H., Walsall
Stockwell, W. Gram. S., Eccles

Attree, F. Margate College
Bailey, D.W. The Douglas S., Cheltenham
Bastick, F.H. Richmond Hill School
Cox, H. *a.* Kelvin Coll., Penarth
Dunn, D.R. Margate College
Hoare, R. St. Joseph's Coll., Dumfries
Peet, J.E. St. George's Coll., Weybridge
Pickering, J.J. Friends' S., Wigtou
²Thomas, J.G. Taunton School
Wood, A.E. *a.al.* Bethany H., Goudhurst
Zahringer, F. St. Aloysius' Coll., Hornsey Lane, N.

²Harvey, A. Brunswick H., Maidstone
Levers, W. Barry Sec. & Comm. S.
Lewis, T. Porth Higher Grade S.
Loar, A. *a.* Salesian S., Battersea
²McCluskey, J.E. St. Joseph's Coll., Dumfries
Naylor, H.T.W. *a.* Ealing Gram. S.
Thomas, C.G. Porth Higher Grade S.
²Waight, H. Hillmartin Coll., Camden Rd., N.W.

Beven, T. Arlington Villa S., Brighton
Crundall, W.F. *a.* Tudor Hall, Hawkhurst
Hand, D. *g.* Oral S. for the Deaf, Fitzroy Sq., W.
Harford, J. Salesian S., Battersea
²Isaacs, F. St. Aloysius' Coll., Hornsey Lane, N.
Kendrick, J.E. Newcastle Modern S.
Lamont, J.E. University S., Southport
Longuehaye, S. *a.* Beverley S., Barnes
²Rogers, A.R. Bethany H., Goudhurst
Smith, N. St. Joseph's Coll., Dumfries
²Stewart, J.M. St. Joseph's Coll., Dumfries
Thomas, D.W. Pencader Gram. S.
Worley, L.R. Osborne High S., W. Hartlepool

²Arana, M. *sp.* Salway Coll., Leytonstone
Brown, G.G.B. Liudisfarne Coll., Westcliff-on-Sea
Dalziel, W. Osborne High S., W. Hartlepool
Fyffe, L.D.E. Grove H., Highgate
Imossi, L. Christian Bros.' Coll., Gibraltar
McGrath, J. St. Joseph's Coll., Dumfries
Millward, D.P. *a.* Advanced Boys' S., Merthyr Tydfil
Redman, H. The Philological S., Southsea

Russell, S. St. Boniface's Coll., Plymouth
Savage, L.L. Bethany H., Goudhurst
Squire, W. *a.* Porth Higher Grade S.
Tilbury, H.W. *a.* The Philological S., Southsea
Tinworth, J. *a.* Salesian S., Battersea
Walker, E.A. *a.* Ealing Gram S.
Watson, S.J. Tynemouth School

Chidley, P.E. *al.* New Coll., Herne Bay
²Clapham, V.C.C. Mile End H., Portsmouth
²Clark, E. The Greystones, Scarborough
Dancey, M. *a.* Beverley S., Barnes
Foster, H.L. Taunton School
²Grylls, H. Kensey, Launceston
Jeka, A. Barry Sec. and Comm. S.
Jung, E. Highfield S., Chertsey
Maher, W. St. Joseph's Coll., Dumfries
Rees, H.G.P. St. Catherine's Coll., Richmond
Warn, C.C.V. The Philological S., Southsea
West, G.C. *a.* St. Joseph's Coll., Dumfries

²Bates, F.W. Cambridge H., Camden Rd., N.
Cramphorn, K.J. Bethany H., Goudhurst
Davis, H. Newcastle Modern S.
Dunnett, C.R. Eastward Ho! Coll., Felixstowe
²Hodges, H.S. Southampton Boys' Coll. & High S.
King, P.H. New Coll., Herne Bay
Myles, J.G.H. Tudor Hall, Hawkhurst
Norman, D. Bethany H., Goudhurst

Bewsher, F.A. *e.* The Philological S., Southsea
²Davies, E.J. Private tuition
Dormer, R.C. Newtown S., Waterford
Platt, D.C. *h.* Tankerton Coll., Tankerton-on-Sea
Robinson, H. St. Aloysius' Coll., Hornsey Lane, N.
Rudolph, R. Townley Castle S., Ramsgate
²Schumann, C.L.G.J. Oxford H., Junction R., N.
Smith, H. Bethany H., Goudhurst

Hazelby, H.W. Richmond Hill School
Kitching, E. Osborne High S., W. Hartlepool
Peacock, H.M. Gram. S., Scorton
Phillips, W. Southport Comm. Coll.
Richardson, M.T. University S., Rochester
²Seatree, J.R. Canning St. Council S., Newcastle-on-T.
Weller, W.R. St. John's Coll., Brixton
Withnell, F. Gram. S., Eccles
Wood, J.A.V. Montrose Coll., Streatham Hill

Chalker, T.W. Beverley S., Barnes
Clark, J.H. *al.* Gram. S., Eccles
Constable, H.M. Arlington Villa S., Brighton
Hilditch, J. St. Joseph's Coll., Dumfries
Martin, J.W. Bethany H., Goudhurst
Moore, J.A. Gram. S., Scorton
²Phillips, M. Bethany H., Goudhurst
Ratcliffe, P.J.S. Tudor Hall, Hawkhurst
Rolfe, E.M. Eastward Ho! Coll., Felixstowe
Rowse, I.A. Newquay College
Stutter, W. St. Joseph's Coll., Dumfries

Bowen, D.E. Porth Higher Grade S.
Connochie, O. *f.* St. Joseph's Coll., Dumfries
²Knight, A.J. Kensey, Launceston
Mackenzie, A. *a.* St. Joseph's Coll., Dumfries
McVey, J. St. Joseph's Coll., Dumfries
Oliver, W. *al.* Newcastle Modern S.
Watson, S.L. Bethany H., Goudhurst
Youatt, L.F. St. George's Coll., Weybridge

²Hoare, L.A. Hillmartin Coll., Camden Rd., N.W.
McWilliam, A. Margate College
Stewart, H. Tankerton Coll., Tankerton-on-Sea

Batty, L.C. Eversley S., Stamford
Clarke, R.A. St. Aloysius' Coll., Hornsey Lane, N.
Davies, J.T. Porth Higher Grade S.
²Donovan, C.A.J. St. Aloysius' Coll., Hornsey Lane, N.
²Swinscow, H.E. Private tuition
Thomas, H.C.G. Priory Coll., Hornsey

Curley, C. Bailey School, Durham
Edge, E. Kelvin Coll., Penarth
Kirby, W.O. Willow H., Walsall
Martyn, L. Newquay College
Parr, W.G. Lindisfarne Coll., Westcliff-on-Sea
Pattiuson, J. *h.* Friends' S., Wigton
Smith, J.A. *a.* Hillmartin Coll., Camden Rd., N.W.
Truran, M.H. Advanced Boys' S., Merthyr Tydfil

Wood, R.E. Gram. S., Eccles

Boorman, T.R. Bethany H., Goudhurst
Garthwaite, J. Osborne High S., W. Hartlepool
²Morrell, C.E. The Palace S., Bewdley
Price, J.W.G. Ealing Gram. S.
Robinson, J.A. *a.* St. Oswald's Coll., Ellesmere
²Steggall, F.W.M. Gram. S., Scorton

Bond, C. Bethany H., Goudhurst
Green, W.A.G. Eversley S., Stamford
Hyrons, R.A. Lindisfarne Coll., Westcliff-on-Sea
Morse, T.S. *a.* Pencader Gram. S.
²O'Neill, A.J. St. Aloysius' Coll., Hornsey Lane, N.
Simmons, A. St. Aloysius' Coll., Hornsey Lane, N.
Sparkes, R.W.B. Holme S., S. Norwood Hill

Comber, R.G. *a.* Taunton School
Dudgeon, J.S. Princess Gardens S., Belfast
²Evans, D.W. County S., Cardigan
McMillan, J.J. St. Joseph's Coll., Dumfries
Morgans, D.R. Porth Higher Grade S.
Parkes, J.H. Modern S., Eccles
Soden, V.M. Pencader Gram. S.
Rosenbloom, D. Townley Castle S., Ramsgate
²Webber, F.C. Dunheved Coll., Launceston
Webster, A.J. Taunton School
Wood, L. Gram. S., Eccles

Barrass, J.G. Modern S., Eccles
Beeson, G.W. Eastward Ho! Coll., Felixstowe
Blurton, T.P. Hillmartin Coll., Camden Rd., N.W.
Holloway, F.E. Ealing Gram. S.
James, D. *a.* Pencader Gram. S.
²Smith, J.A. Victoria Tut. Coll., Buckingham Palace Rd.

Cooper, A. St. Joseph's Coll., Norwood
Harrison, H. St. Mary's Hall, Cardiff
Lawrence, R.A. The Philological S., Southsea
McBurnie, W. St. Joseph's Coll., Dumfries
Pain, E.T. Tudor Hall, Hawkhurst
Rawlings, S. *a.* Richmond Hill School
Swarbrick, T. St. Joseph's Coll., Dumfries
Tristram, E.B. St. George's Coll., Weybridge
Turnbull, T.H. Bethany H., Goudhurst
Tye, E.G. Tudor Hall, Hawkhurst
Waight, L. Hillmartin Coll., Camden Rd., N.W.
Winn, E. St. John's Coll., Brixton

Badams, W.H. Willow H. Coll., Walsall
Betchetti, T.D. The Haughton S., York
²Dalton, J. Private tuition
Davies, D.J. (1) Pencader Gram. S.
Lavery, L. St. Joseph's Coll., Dumfries
Philips, L.B. St. Mary's Hall, Cardiff
Thurlow, P.J. Eastward Ho! Coll., Felixstowe

Charlesworth, T.S. Tynemouth School
Durnan, E. St. Joseph's Coll., Dumfries
Hibberd, T. Oxford H., Junction Rd., N.
²Hughes, W.H. Buckingham Place Acad., Portsmouth
Wilson, L.M. Stafford Coll., Forest Hill

²Brewer, F.A.C. All Saints' Choir S., Clifton, Bristol
de Courcy, C.M. Eversley S., Stamford
Edgington, W. Hillmartin Coll., Camden Rd., N.W.
Evans, H.J. Taunton School
Hosken, C.N. Newquay College
Spranklin, W.A. St. John's Coll., Brixton

²Boissière, E.E. St. George's Coll., Weybridge
Clifton, D.G. Tudor Hall, Hawkhurst
Hammett, J. St. Aloysius' Coll., Hornsey Lane, N.
Hunton, S. Bailey S., Durham
Lardner, D. St. Joseph's Coll., Norwood
Meddings, A. St. Aloysius' Coll., Hornsey Lane, N.
Parfett, D.S. Bethany H., Goudhurst

Cheadle, N. St. Joseph's Coll., Dumfries
Extence, A. St. Boniface's Coll., Plymouth
Forder, G.A.C. Taunton School
Maher, J. St. Joseph's Coll., Dumfries

Andrews, R. St. Boniface's Coll., Plymouth
Gye, N.D. Lindisfarne Coll., Westcliff-on-Sea
²Melbye, C.L. Taunton School
Murray, J.N.C. Bailey S., Durham

CLASS LIST—GIRLS.

(*For list of abbreviations, see page* 328.)

FIRST CLASS [or SENIOR].

Honours Division.

Clift, H.G. *s.f.d.* The Hiatt Ladies' Coll., Wellington
Ching, H.D. *s.g.do.* Municipal Girls' Secondary S., Devonport
Cain, L.G. *e.g.* Municipal Girls' Secondary S., Devonport
Stubbs, H.B. *s.* The Hiatt Ladies' Coll., Wellington

FIRST CLASS [or SENIOR].

Pass Division.

Pollock, M.F. *s.h.* The Hiatt Ladies' Coll., Wellington
Stanley, E.R. *e.* The Gram. S., Penistone
Lane, L.M. *s.e.a.ms.* Municipal Girls' Secondary S., Devonport
Rickard, D.G.M. *e.do.* Municipal Girls' Secondary S., Devonport
Kearney, M. *f.* St. Mary's Conv. S., Charleville
Kirk, V.M. *s.e.f.* Upper St. Leonards Ladies' Coll., St. Leonards
Morrell, B.M. *e.g.do.* Municipal Girls' Secondary S., Devonport
Cowe, E.G. *do.* Municipal Girls' Secondary S., Devonport
Rodriguez, E. *sp.d.* Loreto Conv., Europa, Gibraltar
O'Callaghan, M.M. St. Mary's Conv. S., Charleville
Ward, H.M. *s.* The Hiatt Ladies' Coll., Wellington
Hornsby, I.M. *d.do.* Municipal Girls' Secondary S., Devonport
Tucker, F.M. *h.do.* Municipal Girls' Secondary S., Devonport
Barlow, A. Higher Elem. S., Stalybridge
Bate, R.M. Municipal Girls' Secondary S., Devonport
Addy, E. The Gram. S., Penistone
Birt, M.K. The Hiatt Ladies' Coll., Wellington
Stannard, E. Eldon Coll., Thornton Heath
Greenwood, M.L. The College, Goudhurst
Brown, M.H. *s.* Girls' Gram. S., Levenshulme
Mearles, V. *s.* University S., Rochester
Evans, Mary (1) *do.* Advanced Girls' S., Merthyr Tydfil
Tudor, M.E. *s.* Advanced Girls' S., Merthyr Tydfil
Morgan, M. Advanced Girls' S., Merthyr Tydfil
Deschildre, M. *f.* Anneey Conv., Seaford
Lane, G. *d.* Loreto Conv., Europa, Gibraltar
Pratt, E.M. *s.* The Hiatt Ladies' Coll., Wellington
Beare, F.M. *d.* Municipal Girls' Secondary S., Devonport
Dotto, I. Loreto Conv., Europa, Gibraltar
Pitts, G.F. *do.* Municipal Girls' Secondary S., Devonport
Harris, F.B. The Gram. S., Penistone
Lakey, P. *h.* Municipal Girls' Secondary S., Devonport
Johnston, L.M. *s* The Manse S., Brandon
Hammett, O.M. Municipal Girls' Secondary S., Devonport
Mellor, E. The Gram. S., Penistone
Gilmore, F. *sh.* Conv. la Saint Union des Sacrés Cœurs, Athlone
Havard, A.M. *do.* Advanced Girls' S., Merthyr Tydfil
Owen, A. *w.* Advanced Girls' S., Merthyr Tydfil
Cooper, M. *do.* The Gram. S., Penistone
Dover, E.S. West Ham Central Secondary S., Stratford
Lowe, D. Advanced Girls' S., Merthyr Tydfil
Gay, V.E. Municipal Girls' Secondary S., Devonport
Williams, M.A. Advanced Girls' S., Merthyr Tydfil
Cruikshank, W.G. *s.* The College, Goudhurst
Dobson, L. West Ham Central Secondary S., Stratford
Syborn, O.J. *do.* Municipal Girls' Secondary S., Devonport
Hoare, E. West Ham Central Secondary S., Stratford
Williams, A. Advanced Girls' S., Merthyr Tydfil
Fieldsend, A. The Gram. S., Penistone
Price, M. Advanced Girls' S., Merthyr Tydfil
Jandrell, L.G.G. Private tuition
Vidal, M.L. *f.* The College, Goudhurst
Bell, J. Municipal Girls' Secondary S., Devonport
Hale, M.A. *do.* Palmer's Green High S.
Oliver, E. The Gram. S., Penistone
Foley, Mary. St. Mary's Conv. S., Charleville
Philbin, J.M. *s.* St. Dominic's High S., Stoke-on-Trent
Jones, L.M. Advanced Girls' S., Merthyr Tydfil
Judge, L.J. *s.* University S., Rochester
Passmore, B. Advanced Girls' S., Merthyr Tydfil
Rowley, M.I. *do.* Uxbridge County S.
Coyte, L.S. Municipal Girls' Secondary S., Devonport
Hill, D. *do.* Municipal Girls' Secondary S., Devonport
Olorenshaw, D.A. Private tuition
Davenport, E. St. Dominic's High S., Stoke-on-Trent
Glading, J.M. Private tuition
Walls, E.M. *s.* Private tuition
Eaton, C.M. Cambridge H., Ballymena
Kay, A. *s.* St. Dominic's High S., Stoke-on-Trent
Wadhams, G.M. *s.* University S., Rochester
Jones, C. *do.* Advanced Girls' S., Merthyr Tydfil
Mansell, C. Advanced Girls' S., Merthyr Tydfil
Mills, F.E.S. *f.* Stonyhurst Conv., East Molesey
Peters, K. Advanced Girls' S., Merthyr Tydfil

SECOND CLASS [or JUNIOR].

Honours Division.

Kemp, H.G. *e.d.mu.* Chichester High S. for Girls
Fry, E. *s. e.al.b.d.* Advanced Girls' S., Merthyr Tydfil
Jones, E. *e.b.* Advanced Girls' S., Merthyr Tydfil
Webber, M.J. *s.a.* Advanced Girls' S., Merthyr Tydfil
Shepherd, D. *e.g.mu.* Chichester High S. for Girls
Thomas, M.J. *a.phys.* Higher Elem. S., Pentre
Parry, M. *s.* Advanced Girls' S., Merthyr Tydfil
Lloyd, J. *al.* Advanced Girls' S., Merthyr Tydfil
Williams, A. Advanced Girls' S., Merthyr Tydfil
Rogers, N. *e.g.mu.* Chichester High S. for Girls
Smith, A.E. *s.a.* Gram. S., Penistone
Barrett, G.M. *e.* Chichester High S. for Girls
Ritchings, M. Chichester High S. for Girls
Tinker, D.M. *s.do.* Gram. S., Penistone
Fayle, M.E. *s.mu.* The Friends' S., Mountmellick
Griffin, E.M. *e.* Chichester High S. for Girls
Hawkins, M.O. *d.mu.* Chichester High S. for Girls
Walters, M. *s.* Advanced Girls' S., Merthyr Tydfil
Macdonald, D.A. *s.d.* Weechwood, W. Hampstead
Witheridge, G.O. The College, Goudhurst
Rees, B.M. *ch.* Porth Higher Grade S.
Reilly, D.K. *s.* The Friends' S., Mountmellick
Rust, G.E. The College, Goudhurst
Bell, C. Advanced Girls' S., Merthyr Tydfil
Jones, R.A. Higher Elem. S., Pentre
Rivington, E.B.G. *e.f.* Private tuition
Wernicke, K.M. *s.mu.* Upper St. Leonards Ladies' Coll.
Slatford, K.M. Chichester High S. for Girls
Hazel, S.R. *s.mu.* Upper St. Leonards Ladies' Coll.
Maguire, M.M. *ch.d.* St. Mary's Conv. S., Charleville
Martyn, M. *d.* Porth Higher Grade S.
Stanley, C. *al.* Gram. S., Penistone
Peacock, M.E. Chichester High S. for Girls
Greene, E.A. *s.mu.* The Friends' S., Mountmellick
Parker, E.I. Chichester High S. for Girls
Stone, F.M. St. Dominic's High S., Stoke-on-Trent
Williams, E. Porth Higher Grade S.
Cates, F.I. Chichester High S. for Girls
Milliken, K.M. *gm.* Victoria Coll., Belfast
Williams, R.H. Advanced Girls' S., Merthyr Tydfil
Taylor, N. *f.* Dulwich Hamlet S., Dulwich Village
O'Byrne, M. St. Mary's Conv. S., Charleville
Peel, E.M. Chichester High S. for Girls
Pollexfen, H.E. *mu.* The Friends' S., Mountmellick
Poole, D.A. *s.* The Friends' S., Mountmellick
Lewis, M.A. Advanced Girls' S., Merthyr Tydfil

SECOND CLASS [or JUNIOR].

Pass Division.

[1]Winbush, D.E. *h.d.* Geneva H., Brondesbury
[1]Hammond, M.A. St. Dominic's High S., Stoke-on-Trent
[1]Davies, E.M. Advanced Girls' S., Merthyr Tydfil
[1]Cooke, A.E. *s.* Girls' Gram. S., Levenshulme
[1]Taylor, E.L. Higher Elementary S., Stalybridge
Bradfield, D.A. *f.* Private tuition
Evans, A. *ch.* Porth Higher Grade S.
Lee, E.M. *e.* Chichester High S. for Girls
Price, P.M. *d.* Chichester High S. for Girls
Edwards, D. *mu.* The College, Goudhurst
Heath, D. Gram. S., Penistone
Hossell, M. *s.* The Hiatt Ladies' Coll., Wellington
[1]Jenkins, A.M. Private tuition
Smiley, E.F.M. *d.* Victoria Coll., Belfast
Warren, R.C. *e.* Chichester High S. for Girls
Watts, M. Adv. Girls' S., Merthyr Tydfil
Kenny, M. *ir.ch.* St. Mary's Conv., Bruff
Somerville, M. *s.* Hillside Modern S., Wealdstone
[1]Thurmott, E.N. *s.* Uxbridge County S.
Evans, Mattie Advanced Girls' S., Merthyr Tydfil
[1]Graham, W.M.K. Private tuition
Horner, J.M. Private tuition
Lewis, J. Advanced Girls' S., Merthyr Tydfil
Peña, M. *mu.* Loreto Conv., Europa, Gibraltar
Williams, V.K. *s.* The Hiatt Ladies' Coll., Wellington
Carroll, G. St. Mary's Conv. S., Charleville
Davies, M.A. Advanced Girls' S., Merthyr Tydfil
Jones, B. Porth Higher Grade S.
Turner, M.E. Chichester High S. for Girls
[1]Allen, M.A. *g.* Municipal Girls' Secondary S., Devonport
Cahill, C. *mu.* St. Mary's Dominican Conv., Cabra, Dublin
Gripper, E.C. The College, Goudhurst
Gunton, H.C. *e.d.* Grasmere, Appledore, Ashford
[1]Lee, M. Municipal Girls' Secondary S., Devonport
Griffiths, A. Higher Elem. School, Pentre
Mosley, C.W. *d.* Loreto Conv., Europa, Gibraltar
[1]Braddock, F. St. Dominic's High S., Stoke-on-Trent
Evans, C.M. Higher Elem. S., Pentre
Segar, C.M. Private tuition
Jones, Ceinwen Advanced Girls' S., Merthyr Tydfil
Pettitt, P.M. The College, Goudhurst
Fogarty, S. *a.gm.* Presentation Conv., Thurles
Adams, H. Porth Higher Grade S.
Jones, S. *ch.* Porth Higher Grade S.
Aherne, K. St. Mary's High S., Midleton
[1]Logan, M.W. *f.* Ladies' S., Ballyclare
Daniel, S.P.L.H.T. Private tuition
[1]Lloyd, H. Advanced Girls' S., Merthyr Tydfil
Mowl, E.K. The College, Goudhurst
Evans, O.M. Higher Elem. S., Pentre
Hudson, L.M. University S., Rochester
Llewellyn, M.M. *do.* Hr. Standard S., Gadlys, Aberdare
[1]Carr, L.V. Private tuition
Nickel, M. *ge.* Private tuition
Tout, E. *ch.* Porth Higher Grade S.
[1]Cooper, B.E. Gram. S., Penistone
Fevre, M. St. Mary's Conv. S., Charleville
Greene, H. *ch.* Porth Higher Grade S.
Brassill, M. St. Mary's Conv. S., Charleville
Graham, E. *e.* Victoria Coll., Belfast
Swallow, M. Gram. S., Penistone
[1]Hoyle, H. Private tuition
Witheridge, K.M.V. The College, Goudhurst
Collins, E.R. Lynton H., Portsmouth
Drury, F.W. The Friends' S., Mountmellick
Huggins, A.G. The Bryant S., Wainfleet
[1]Currie, E.R. Cambridge H., Ballymena
Doubleday, M. *s.* Grasmere, Appledore, Ashford
Lascelles, M.F. *s.* Princess Gardens S., Belfast
[1]Allen, M. St. Dominic's High S., Stoke-on-Trent
[1]Brandel, M.H. *f.ge.* Ursuline Conv., Blackrock
[1]Evans, M. (2) Advanced Girls' S., Merthyr Tydfil
Rees, N. Advanced Girls' S., Merthyr Tydfil
Duggan, D. St. Mary's Conv. S., Charleville
Farrow, M.O.C. *d.* French Conv., Newhaven
Leahy, D. St. Mary's Conv., Bruff
Collins, M.V.R. *s.* Milburn H., Honor Oak Park
Harrison, D. *d.* The Friends' S., Mountmellick
Jones, Meta Advanced Girls' S., Merthyr Tydfil
Burnett, M. *e.* Chichester High S. for Girls
Fogarty, N. *s.* St. Mary's Dominican Conv., Cabra, Dublin
[1]Gales, M. *do.* Uxbridge County S.
Isaac, M. Advanced Girls' S., Merthyr Tydfil
[1]Matthews, V. *s.* County Secondary S., St. Pancras
[1]Moloney, M. St. Joseph's S., Lincoln
Sarll, M. *mu.* Franciscan Conv. S., Melton Mowbray
Gloyne, E.E. *f.* Private tuition
O'Donohue, K. Cahir Conv. S.
Thomas, E. *d.* Higher Elem. S., Pentre
Turner, R.L. County S., Liskeard
Bourke, B. St. Mary's High S., Midleton
Chappell, G.M. Fartown Gram. S., Huddersfield
[1]Hughes, M.M. Victoria Coll., Liverpool
Lewis, M.M. Advanced Girls' S., Merthyr Tydfil
O'Neill, N. St. Mary's Conv. S., Charleville
Pedley, E.M. Private tuition
[1]Gleghorn, J. *do.* Private tuition
[1]Havard, H.J. Private tuition
[1]Wilson, F. Gram. S., Penistone
Cubitt, I. *mu.* St. Hildred's, Southsea
[1]Pickering, E. *d.* St. Dominic's High S., Stoke-on-Trent
[1]Prince, G.E.D. *s.* Viaduct H., Coalbrookdale
Vincent, I.V. Private tuition
Bowen, F.J. Higher Elem. S., Pentre
Corcoran, M. Presentation Conv., Thurles
[1]Owen Williams, M. Private tuition
Chapman, P.K. Private tuition
[1]Cox, G.E. Private tuition
Walker, M.C. Friends' S., Wigton
[1]Williams, M. Private tuition
Clarke, A. Convent of Mercy S., Birr
Jungermann, E.E. Milburn H., Honor Oak Park
[1]Redman, C. St. Dominic's High S., Stoke-on-Trent
Holland, M. St. Dominic's High S., Stoke-on-Trent
[1]Jones, E.G. St. Dominic's High S., Stoke-on-Trent

GIRLS, 2ND CLASS, PASS.—*Continued.*

[1]Peace, E. Gram. S., Penistone
Poole, F.G. *mu.* Private tuition

Beresford, E. Netherthorpe Gram. S., Staveley, Chesterfield
Heath, C.A. *a.* Private tuition
[1]Redhead, D.M. Cheetham Coll. S., Manchester

Evans, M.E. Advanced Girls' S., Merthyr Tydfil
Griffin, J. Advanced Girls' S., Merthyr Tydfil
[1]Hunt, E. Private tuition

Lawlor, A. *mu.* St. Mary's Dominican Conv., Cabra, Dublin
Reidy, M. St. Mary's Conv. S., Charleville
[1]Steele, B. Private tuition
Young, O.J. Friern Manor Coll., E. Dulwich

Shaw, E. Advanced Girls' S., Merthyr Tydfil
Twomey, C. Sacred Heart S., Kanturk

[1]Bowles, S.K. Private tuition
[1]Reilly, F. St. Dominic's High S., Stoke-on-Trent
Williams, M. Porth Higher Grade S.

Cleary, N. *mu.* St. Mary's Dominican Conv., Cabra, Dublin
[1]Gregory, K. Private tuition
[1]Kaye, B. Fartown Gram. S., Huddersfield
Parratt, A.L. Froebel, Spalding

Tyrrell, F. *mu.* Entry H., Diss

Beckett, F.H. The College, Goudhurst
Carew, M. Presentation Conv., Thurles

Burgess, M. *mu.* Liuwood S., Altrincham
Cros, I.M. *ge.* St. Mary's Dominican Conv., Cabra, Dublin
Hirst, D.M. *mu.* Private tuition
Richardson, G.M. University S., Rochester

Barry, M. St. Mary's Conv., Bruff
Fischer, I. *ge.* Private tuition

Bruce, E.E. The College, Goudhurst
Dawson, M. Fartown Gram. S., Huddersfield
[1]Poole, M.C. Orrengtou H., Belfast
[1]Shearman, C.L. Private tuition
Ward, D.K. The Haughton S., York

Bracegirdle, R. Inglewood S., Mobberley
O'Brieu, K. *ch.* St. Mary's Conv., Bruff
Paton, I.M.McC. *s.* Princess Gardens S., Belfast
[1]Roberts, A.I. Pengwern Coll., Cheltenham
Spencer, G.M. Sherwood Rise S. & Kg., Nottingham

Cooper, H.G. West Bridgford Higher S.
Keating, T. *ir.* St. Mary's Conv., Bruff
Rowlands, S.A. Advanced Girls' S., Merthyr Tydfil

Mansell, E.A. Belgrave H., Wandsworth Common
Sanders, A. St. Dominic's High S., Stoke-ou-Trent

Elliott, D.J.H. Lynton H., Portsmouth
Woodhouse, L. Franciscan Conv. S., Melton Mowbray

Daniel, E. Private tuition

Beyer, E. Notre Dame High S., Clapham Common
Ishmael, E.J. Private tuition
Stockdale, A.W. Victoria Coll., Belfast

Brown, N. Liskeard High S.
Cotterell, M. Private tuition
[1]Curtayne, T.M.G. Franciscan Conv. S., Melton Mowbray
Tucker, K. Notre Dame High S., Clapham Common

Hewitt, M.A. *d.* Private tuition
Liddy, S. *ch.* St. Mary's Conv., Bruff
Martin, M. St. Mary's Conv., Bruff
Woodfull, B. *s.* The Poplars, Small Heath, Birmingham

Burgess, N.R. The College, Goudhurst
Hughes, E. Advanced Girls' S., Merthyr Tydfil

Kilkelly, G. St. Mary's Dominican Conv., Cabra, Dublin
Selley, G. Girls' S., Lostwithiel
[1]Smith, M. Private tuition
[1]Taylor, L. Private tuition

Alexander, O. Porth Higher Grade S.
Jones, S.A. Porth Higher Grade S.

Funnell, M.N. *mu.* Private tuition

Cornet, C. French Conv., Newhaven
Taylor, D.B. Lynton H., Portsmouth
Woolcock, A. *s.* Froebel, Spalding

Grierson, E.A. Private tuition
Shaffery, A. St. Dominic's High S., Stoke-on-Trent
Vaughan, F.M. Bayswater Institute

Godley, A.E. Arlington Villa S., Brighton

Thomas, R.J. Hr. Standard S., Gadlys, Aberdare

Burton, C. Porth Higher Grade S.
Dooley, K. St. Dominic's High S., Stoke-on-Trent

McKenzie, E. Notre Dame High S., Clapham Common
O'Leary, R. St. Mary's Conv., Bruff
Swinsen, B.M.A. High S., Leek

THIRD CLASS.

Honours Division.

Peña, I. *e.h.al.d.mu.* Loreto Conv., Europa, Gibraltar
Cappelle, A.C. *e.f.ge.* Rockhill, Folkestone
Jacob, M.R.K. *s.e.a.f.d.mu.* The Friends' S., Mountmellick
Clark, T. *e.h.a.d.mu.* Loreto Conv., Europa, Gibraltar
Murdoch, M.V. *s.e.a.al.f.mu.* The Friends' S., Mountmellick
Browett, C. *s.e.h.a.al.mu.* The Friends' S., Mountmellick
Griffiths, M. *s.e.g.a.al.w.d.* Advanced Girls' S., Merthyr Tydfil
Catel, J.M. *e.f.* Rockhill, Folkestone
Hulme, E.M. *s.e.a.mu.* Cole Hill S., Tamworth

Sobernheim, F. *e.a.al.f.ge.* Mansfield H., Cliftonville
Turtle, E.F. *s.e.a.d.* The Friends' S., Mountmellick
Smith, E.B. *s.e.a.d.* The Friends' S., Mountmellick
Dilling, A.M. *e.a.al.gm.d.* Higher Elem. S., Pentre
Wilson, O.M.R. *e.a.d.* Victoria Coll., Belfast

Jones, Charlotte *s.e.a.al.w.* Advanced Girls' S., Merthyr Tydfil
Malvy, M. Convent S., Cadogan St., Chelsea
Griffiths, R.A. *a.al.w.* Higher Elem. S., Pentre
Mulcahy, N. *e.a.al.* St. Mary's Conv., Bruff

Alcock, V.K. *h.mu.* The Friends' S., Mouutmellick
MacMullen, L.P. *e.h.f.ge.* Private tuition
Lewis, G. *e.a.al.* Higher Elem. S., Pentre

Jones, K. *s.e.a.al.w.* Higher Elem S., Pentre
McGliuchy, E. *s.e.h.g.a.d.* Rossmore, Camberley
Noonan, M. *a.d.* St. Mary's Conv., Bruff
Pogue, A. *f.sp.* Loreto Couv., Europa, Gibraltar
Savill, M. *s.e.* Entry H., Diss

Douglas, D. *s.e.a.* Newtown S., Waterford
Fitzgerald, L. *a.al.ir.* St. Mary's Conv., Bruff
Guerrapin, M.M. Couvent S., Cadogan St., Chelsea
Pomeroy, L.M. *a.al.* Roanoke Coll. S., Palmer's Green
Smith, P. *d.* Loreto Conv., Europa, Gibraltar

Darney, G. *s.* Rockhill, Folkestone
Lewis, Mary *a.al.w.* Advanced Girls' S., Merthyr Tydfil

Gruggen, N. Notre Dame High S., Clapham Common
Prestwood, M. *e.a.al.* Advanced Girls' S., Merthyr Tydfil

Bobby, M. *e.mu.* Entry H., Diss
Couche, E.S.E. *s.* Southernhay S., Exeter
Davis, E.A. *s.d.* Sirsa H., Cheltenham
Doran, R. *e.h.al.gm.f.* Dominican Conv., Wicklow

Sennett, M.M. *e.a.* The Frieuds' S., Mountmellick
Swarbrick, M.A. *e.* Stretton H., Fleetwood

Cooke, F.P. *e.d.* St. Aidan's, Whitley Bay
Knight, A. *s.* Rockhill, Folkestone
Thomas, D. *s.h.a.* Advanced Girls' S., Merthyr Tydfil

Parry, E. *a.* Advanced Girls' S., Merthyr Tydfil
Tribe, D. *al.d.* Notre Dame High S., Clapham Common
Wrigglesworth, W.M. *s.a.* School House, Broome, Clent

Glover, M.L. *e.ge.* Rockhill, Folkestone
Hutchings, D.C. Higher Elem. S., Pentre
Schang, M. *f.* St. David's Conv. High S., Brecon
Smith, M.A. *s.* Eldon Coll., Thornton Heath
Sparham, S.A. *s.a.f.* Arlington Villa S., Brighton
Taylor, A.E. *e.ge.* White Hall, Witham

Berkery, D. *a.* St. Mary's Conv., Bruff
Evans, M.E. *s.al.* Advanced Girls' S., Merthyr Tydfil
Wallace, A. *a.* St. Mary's Conv., Bruff

Davies, H. *e.a.al.* Barry Sec. & Comm. S.
Daysh, D.G. *e.h.* Lynton H., Portsmouth
Evans, H. *a.al.* Advanced Girls' S., Merthyr Tydfil
Gornall, D. *e.a.* Seafield, Promenade, South Shore, Blackp'l
Morris, S.M. *s.a.* Montpellier Coll., Budleigh Salterton

Keville, M. *a.* Cahir Convent S.
Lewis, Lizzie *a.al.* Advanced Girls' S., Merthyr Tydfil

Hall, D. *d.* Lowther Coll., Lytham
Humphreys, E. *e.* St. Mary's Conv., Bruff
Prudhomme, M. Convent S., Cadogan St., Chelsea
Roberts, E. *a.* Advanced Girls' S., Merthyr Tydfil

THIRD CLASS.

Pass Division.

[2]Mowl, D.O. The College, Goudhurst
[2]Burns, M. *eh.* St. Mary's Conv., Bruff
[2]Davies, Margaret E. Advanced Girls' S., Merthyr Tydfil
[2]Quinn, K. *mu.* St. Mary's Dominican Conv., Cabra, Dublin
[2]Whybro, M.E. The College, Goudhurst
[2]Barry, D. St. Mary's Dominican Conv., Cabra, Dublin
[2]Taylor, N. Upper St. Leonards Ladies' Coll.

[2]Kennedy, M. Cahir Convent S.
[2]O'Conuell, A. *ir.* St. Mary's Conv., Bruff

[2]Clarke, E. Cahir Convent S.
[2]Knight, J.A.C. Buckingham Place Acad., Portsmouth
[2]Lacamp, M.C.E. *mu.* Haughton S., York
[2]Carpenter, D.G. The College, Goudhurst
[2]Filose, M. *mu.* St. Mary's Dominican Conv., Cabra, Dublin

[2]Bush, J.M. The College, Goudhurst
[2]Keetinge, K. St. Mary's Conv., Bruff
[2]Cleary, M.B. Cahir Convent S.

[2]Davies, Mary E. Advanced Girls' S., Merthyr Tydfil
[2]Davies, S. Porth Higher Grade S.
[2]Hartigan, M. St. Mary's Conv., Bruff
[2]Hynes, M. St. Mary's Couv., Bruff

[2]MacDonald, L. St. Mary's Couv., Bruff
[2]Ryan, B. Presentation Conv., Thurles

Morgan, G. Barry Sec. & Comm. S.
Morris, I. *a.* Advaucced Girls' S., Merthyr Tydfil

Dewe, G.S. *s.* Upper St. Leonards Ladies' Coll.
Meses, A. *f.* Private tuition
[2]Power, A. *mu.* Cahir Convent S.

[2]Harrison, E. The Laurels, Kegworth
Hiltou, J. Lowther Coll., Lytham
Murray, I. *e.a.d.* Dominican Conv., Wicklow
Netto, L. Loreto Couv., Europa, Gibraltar
[2]Poole, L. High S., Twickenham Green
Sheppard, E.K. *a.* Buckland H., Axminster
Whitney, E. *a.* Advanced Girls' S., Merthyr Tydfil

[2]Conroy, J. *mu.* Carlyle Coll., Clapham Common
[2]Webb, M.E. The Laurels, Kegworth

De Lilliac, M.M.A. *f.* French Conv., Newhaveu
[2]Dixon, M. Notre Dame High S., Clapham Common
Dupin, R.M. Couvent S., Cadogan St., Chelsea
Edwards, B. *a.al.* Advanced Girls' S., Merthyr Tydfil
[2]Lane, K.M. The College, Goudhurst
Maleplate, L. *a.f.d.* Annecy Conv., Seaford
Scott, M.F. *s.e.a.* Christ Church Girls' S., Bootle
Wilson, D. *e.f.* Cahir Convent S.

Cribbins, C. St. Mary's Conv., Bruff
Duggan, K. *a.* St. Mary's Conv., Bruff
[2]Horne, M.S. Newtown S, Waterford
Jamison, M.E. *e.* Victoria Coll., Belfast
Jenkins, M.M. *e.* Higher Elem. S., Pentre
[2]Moran, L. Presentation Conv., Thurles

Ball, H. *e.h.f.* Dominican Conv., Wicklow
[2]Bentham, G.E.O. Ravenscourt H., Ravenscourt Pk., W.
Coe, W.E. *s.* Holmwood Coll., Westcliff-on-Sea
Davies, G.M. *a.* Higher Elem. S.; Pentre
Goring, J.V.K. University S., Rochester
Gormley, W.M. *e.* Franciscan Couv. S., Melton Mowbray
Imossi, E. Loreto Conv., Europa, Gibraltar
Jones, R.B. *e.a.* Higher Elem. S., Pentre
Monkton, H.M. *h.g.* Holmcroft S., Bromley
O'Sullivan, R. *a.* St. Mary's Dominican Conv., Cabra, Dublin
[2]Rees, M.E. Private tuition
Saunders, M. *a.* Higher Elem. S., Pentre
Warwick, F.M. *f.* Arlington Villa S., Bright'n
Whelan, K. Barry Sec. & Comm. S.
Young, D. *e.h.* The College, Goudhurst

Brennan, K. *a.* Convent of Mercy S., Birr
[2]Hillam, N.E. West Bridgford Higher S.
[2]Lewis, M.J. Porth Higher Grade S.
O'Connor, E. St. Mary's Dominican Conv., Cabra, Dublin
[2]Whitehead, M. The Convent, Highgate Rd., N.W.

Arthur, N. *al.* Advanced Girls' S., Merthyr Tydfil
Barrett, S.H. *e.* Cozy Lodge, Coll. S., Dublin
Mounsey, L. *e.a.* Cozy Lodge, Coll. S., Dublin
O'Shea, N. *a.* St. Mary's S., Couv. of Mercy, New Ross
[2]Potts, J.M. Victoria Coll., Belfast

Hayes, H.E. *a.* The College, Goudhurst
Kennedy, E. *a.al.* Victoria Coll., Belfast
Kepple, J. *a.* St. Mary's Dominican Conv., Cabra, Dublin
Newby, K.L. The Hiatt Ladies' Coll., Wellington
Ryan, J. *d.* St. Mary's Couv., Bruff
Whittle, E.D. *g.* Holmcroft S., Bromley

[2]Dean, N.E. Buckingham Place Acad., Portsmouth
Groom, M.S. The Hiatt Ladies' Coll., Wellington
[2]Jones, C.J. Advauced Girls' S., Merthyr Tydfil
Mulvin, Q. *a.* St. Mary's Dominican Couv., Cabra, Dublin
Pierce, J. *e.a.* St. Mary's Dominican Conv., Cabra, Dublin
Rollinson, D. Stamford H., Edgbaston
Speirs, M.L. *s.* Milburn H., Honor Oak Park
Thelwall, P.M. *a.* High S., Sidney Place, Cork
Thomas, G. *a.* Advanced Girls' S., Merthyr Tydfil

[2]Andrews, C.M. St. John's H., Felixstowe
Cotter, N. St. Mary's Dominican Conv., Cabra, Dublin
[2]Farrell, A. *b.* Advanced Girls' S., Merthyr Tydfil
[2]Gorman, M. Presentation Conv., Thurles

Cotter, G. Advanced Girls' S., Merthyr Tydfil
Cussen, E. *e.a.* St. Mary's Conv. S., Charleville
Ellis, M.V. *a.* Chatham H., Wimbledon
Jackson, L. *d.* The College, Goudhurst
Jones, Maria *a.* Advanced Girls' S., Merthyr Tydfil
Jones, May Advanced Girls' S., Merthyr Tydfil
Kennedy, M. St. Mary's Conv., Bruff
Mitchell, D.E. *s.* Girls' S., Lostwithiel
Ryan, M. Convent of Mercy S., Birr
Schatzko, S. Convent S., Cadogan St., Chelsea
Scowcroft, M.H. *s.h.* Seafield, Promenade, South Shore, Blackp'l

[2]Betts, G.M. Carlyle Coll., Clapham Common
Cowderoy, P.E. *e.* The College, Goudhurst
[2]Cuddy, M. Convent of Mercy S., Birr
Hughes, C. Higher Elem. S., Pentre
Lloyd, M.M. Higher Elem. S., Pentre
[2]O'Regan, M. St. Mary's Conv., Bruff

Beharell, F.D. *s.* Victoria Coll., Southend-on-Sea
Calf, I.G. *s.a.d.* Alwyue Coll., Canonbury
[2]Cuming, S. Notre Dame High S., Clapham Common
Jones, K. Porth Higher Grade S.
Price, F. Higher Elem. S., Pentre
Welsh, M. St. Mary's Conv., Bruff

Byrue, G. *e.* Dominican Conv., Wicklow
[2]Cock, E.M. St. Joseph's Conv., Redhill
[2]Downs, D. St. Mary's Dominican Conv., Cabra, Dublin
Guinee, C. Sacred Heart S., Kanturk
Kendon, G.E. *e.* The College, Goudhurst
[2]Nock, E.A. The Kingsley S., Shifnal
Olivier, E. *a.f.* Annecy Conv., Seaford
Powell, E.M. Holmcroft S., Bromley
Sheppard, A.D. *s.* Bedford Hill Coll., Balham
[2]White, F.M. Whitville Coll., Nottingham
Wolstenholme, L. *s.* Private tuition

Arnott, B. *a.* Advanced Girls' S., Merthyr Tydfil
McGrath, J. *al.* St. Mary's Conv., Bruff
[2]Skinner, M. St. Mary's Conv., Bruff

[2]Green, M.I. Victoria Coll., Belfast
Griffiths, S. Higher Elem. S., Pentre
Hitchings, D.J. *mu.* Hill House Coll., Haverfordwest
Mackenzie, D.H. *a.* Clarendon Coll., Tufnell Park
MacKnight, E.I. Victoria Coll., Belfast
[2]Moroney, B. St. Mary's Conv., Bruff
[2]Peak, G. *mu.* Private tuition
Slattery, M. St. Mary's Conv., Bruff
Tassell, I.E. The College, Goudhurst
Warner, A. *a.* High S., Sidney Place, Cork
Williams, E. Higher Elementary S., Pentre
Wilton, G.S. The Hiatt Ladies' Coll., Wellington

[2]Boden, S.L.G. Friern Manor Coll., East Dulwich
[2]Duggan, E. St. Mary's Conv., Bruff
Enright, M. St. Mary's Conv., Bruff
Fennessy, K. Cahir Convent S.
Hough, M. *a.* St. Mary's Dominican Conv., Cabra, Dublin
O'Brien, H. *a.* St. Mary's Conv. S., Charleville

GIRLS, 3RD CLASS, PASS.—*Continued.*

Ryan, E. St. Mary's Dominican Conv., Cabra, Dublin
²Ryan, Mary Presentation Conv., Thurles
Villars, S.G. *d.* French Conv., Newhaven
Whelan, A. St. Mary's Conv., Bruff

²Barnett, M. Somerset H., Ramsgate
Batho, S.C. *e.* The Hiatt Ladies' Coll., Wellington
Burdock, D. *a.* Notre Dame High S., Clapham Common
Burrell, K. Private tuition
Cremen, M. *a.* St. Mary's Conv. S., Charleville
James, B. *d.* Higher Elementary S., Pentre
Jones, B. Advanced Girls' S., Merthyr Tydfil
²Jones, D. *mu.* Old College S., Carmarthen
Kennedy, J.G. Victoria Coll., Belfast
Murnane, N. St. Mary's High S., Midleton
Skinner, G. St. Mary's Conv., Bruff
²Taylor, G. Porth Higher Grade S.
Trémoulet, S.J.M. French Conv., Newhaven

Bryden, F.G. *a.* University S., Rochester
Evans, Gwenifred *a.* Higher Elem. S., Pentre
²Fitzgerald, A. St. Mary's Conv., Bruff
²Helbling, D.M. Beulah House High S., Upper Tooting
Lomas, G.V. *s.* Southoe H., Richmond
Margetts, E.C. Colne Valley S., Rickmansworth
Thomas, C. *a.* Highcroft S., Barry
Ward, M.D. Sirsa H., Cheltenham
Williams, J. *w.* Porth Higher Grade S.

Dawson, D. Fartown Gram. S., Huddersfield
Downs, A. St. Mary's Dominican Conv., Cabra, Dublin
Escott, G. *h.* Annecy Conv., Seaford
²Evans, E.M. Old College S., Carmarthen
Gower, E.M. *s.* Nuthurst, Sanderstead
Kearney, N. *a.* St. Mary's Conv. S., Charleville
²Marshall, B. St. Mary's Conv., Bruff
Powell, E.M. *a.* The Hiatt Ladies' Coll., Wellington
Pratt, K. The College, Goudhurst
Russo, R. *a.sp.* Loreto Conv., Europa, Gibraltar
Sparham, M.E.D. Arlington Villa S., Brighton
Tichborne, T. *e.f.* High S., Sidney Place, Cork
van Aker, A. Fauntleroy, St. Leonards-on-Sea

Dennett, N. Oakfield S., Handsworth
Given, A. Aintree Higb S., Liverpool
Horsley, D.G. *s.* Seafield, Promenade, South Shore, Blackp'l
Hunt, A.A. *g.* Christ Church Girls' S., Bootle
Reid, M.C. *a.* Longfield, Belfast
Simpson, J. Aintree High S., Liverpool
Spears, M. *e.* Convent of Mercy S., Birr
Toohey, B. Convent of Mercy S., Birr
Williams, G.E. Higher Elem. S., Pentre

Burke, K. *a.* Presentation Conv., Thurles
Corbet, J. *a.* Presentation Conv., Thurles
Rees, M.A. *a.* Advanced Girls' S., Merthyr Tydfil

Allwork, M.E. *d.* High Bank S., Harlesden
Clery, A. St. Mary's Conv., Bruff
Cole, K.H. High S., Sidney Place, Cork
Evans, C. *a.* Advanced Girls' S., Merthyr Tydfil
Holland, M.D.E. Beaulieu S., Parkgate, Swanwick
Keehan, M. St. Mary's Dominican Conv., Cabra, Dublin
Maguire, H. St. Mary's Dominican Conv., Cabra, Dublin
Worthington, M.E. Higher Elem. S., Pentre

²Chandler, H.P.B. Ellesmere Coll., Cheltenham
Cragg, D.L. Milton Lodge S., Fleetwood
²Duffett, M. 16 Lavant Street, Petersfield
²O'Neill, K. St. Mary's Dominican Conv., Cabra, Dublin
Pennington, M. *g.d.* Lowther Coll., Lytham
Roche, E. Cahir Convent S.
Woodham, G. *d.* Barry Sec. & Comm. S.

²Butler, D.L. Lynton H., Portsmouth
Gillham, E. The College, Goudhurst
Malone, L.M. St. Mary's Dominican Conv., Cabra, Dublin
Smith, M. Alwyne Coll., Canonbury
Stockdale, J.B.E. Victoria Coll., Belfast
Thomas, V. *a.* Porth Higher Grade S.
Wilson, D.V.S. *f.* Upper St. Leonards Ladies' Coll.

Bateman, E. Higher Elem. S., Pentre
Burton, G. The Poplars, Small Heath, Birmingham
Devon, M.E. *s.* Seafield, Promenade, South Shore, Blackp'l
Ellis, L.B. Holmwood Coll., Westcliff-on-Sea
Gilbert, H.M. *a.* The Hiatt Ladies' Coll., Wellington
Liley, G.A. Holmwood Coll., Westcliff-on-Sea
O'Sullivan, K. St. Mary's High S., Midleton
Rutz, D. Wincham Hall S., Lostock Gralam
Wilkins, G.M. Geneva H., Brondesbury
Wilson, S. Friends' S., Wigton

Blackhurst, M.M. Seafield, Promenade, South Shore, Blackp'l
²Byrne, W. Convent of Mercy S., Birr
Cooke, M.E. Lynton H., Portsmouth
Crossland, K. Girls' Secondary S., Oxford Rd., Abingdon
Davies, B. Gram. & Coll. S., Carnarvon
Hackett, C. *d.* Cahir Convent S.
Lambooy, B.M. Montpellier Coll., Budleigh Salterton
Moroney, M. Notre Dame High S., Clapham Common
Smith, E.R. Home Park S., Stoke
Vaughan, M.M. Victoria Coll., Belfast

Cheshire, A.M. Notre Dame High S., Clapham Common
Cooper, J. St. John's H., Felixstowe
d'Elva, C.M. St. Ursula's S., Westbury-on-Trym
Hayward, P. Notre Dame High S., Clapham Common
Knight, G.E. The College, Goudhurst
McDermott, A. St. Mary's Dominican Conv., Cabra, Dublin
Mitchell, C. Notre Dame High S., Clapham Common
Wilson, B. Friends' S., Wigton

Birchall, D. Private tuition
Briggs, D.A. Belgrave H., Wandsworth Common
²Cleary, B. St. Mary's Dominican Conv., Cabra, Dublin
Davies, A.J. Advanced Girls' S., Merthyr Tydfil
Jones, M.A. Higher Elem. S., Pentre
Malone, M. St. Mary's Dominican Conv., Cabra, Dublin
Murray, C.J.M. *a.* Princess Gardens S., Belfast

Barrett, K.V. The College, Goudhurst
Brock, D.M. The Limes, Buckhurst Hill
Collins, G. *a.* Advanced Girls' S., Merthyr Tydfil
Ellis, E. The College, Goudhurst
Forbes, M.M. Newtown S., Waterford
Luke, A.J. *d.* Private tuition
Maclennan, W.J. *e.* Private tuition
McCormac, A. St. Mary's Dominican Conv., Cabra, Dublin
McDowell, E. Knock Intermediate S. & Kindergarten
McKay, M. *s.* Aintree High S., Liverpool
O'Gorman, A. *a.d.* St. Mary's Conv. S., Charleville
Scarlett, E.P.M. Southoe H., Richmond

Bartlett, E.E. Home Park S., Stoke
Crilly, P. Notre Dame High S., Clapham Common
Gladwell, S.M. Guelph Coll., Bristol
Holbrook, I.E. St. Ursula's S., Westbury-on-Trym
Jones, B. Porth Higher Grade S.
Levy, R. Mansfield H., Cliftonville
McKenna, R.M.M. *f.* French Conv., Newhaven
Morgan, G. Advanced Girls' S., Merthyr Tydfil
Morgan, J. *a.* Advanced Girls' S., Merthyr Tydfil
Soanes, B.H. Fauntleroy, St. Leonards-on-Sea
Stokes, S. Knock Intermediate S. & Kindergarten
Wood, K.S. *d.* Fartown Gram. S., Huddersfield

Beavis, D.M. *a.* Westbourne S., Paddington
²Dixon, S. Springfield, Corbridge-on-Tyne
Foley, May *a.* St. Mary's Conv. S., Charleville
Greene, M.C. St. Mary's High S., Midleton
²Higgins, C. St. Mary's Conv., Bruff
Howard, A. Franciscan Conv. S., Melton Mowbray
Jackson, E.L.I. Wincham Hall S., Lostock Gralam
²Patton, E.J. Victoria Coll., Belfast
²Ronayne, M.J. St. Mary's High S., Midleton
Snowdon, A. Friends' S., Wigton
Templeman, G. St. Winifred's S., Wimbledon
Weekes, M. Advanced Girls' S., Merthyr Tydfil

English, V. Cahir Convent S.
Hunter, A.B. Princess Gardens S., Belfast
Langley, V. Belgrave H., Wandsworth Common
O'Brien, E. St. Mary's Conv., Bruff
O'Flynn, B. St. Mary's Conv., Bruff
Parkinson, M. Haughton S., York
Ware, H. Notre Dame High S., Clapham Common
Witthaus, D. Hill Croft S., Stamford Hill

Anwyl, M.E. Girls' Secondary S., Oxford Rd., Abingdon
Breen, M. St. Mary's Dominican Conv., Cabra, Dublin
Carey, I. Friends' S., Wigton
Inuossi, A. *d.* Loreto Conv., Europa, Gibraltar
Jones, I. Porth Higher Grade S.
Morgan, B. *a.* Advanced Girls' S., Merthyr Tydfil

Byrne, E. St. Mary's Dominican Conv., Cabra, Dublin
Cole, S. Porth Higher Grade S.
Humphrey, D.I. Conv. of the Compassion, Acock's Green, B'ham
Lofting, H.A. *a.* Chatham H., Wimbledon
O'Connor, E. *a.* Sacred Heart S., Kanturk
Sage, E. Porth Higher Grade S.
Schofield, D.E. Seafield, Promenade, South Shore, Blackp'l
Batchelor, Madeleine *f.* Annecy Conv., Seaford
Billings, G. Shenley H., Highgate
Braddon, M.N.D. Carisbrooke Coll., Walthamstow
²Evans, A.M. Porth Higher Grade S.
O'Neill, G. St. Mary's Conv., Bruff
²Ryan, M. Cahir Convent S.
Tilley, M.I. Pengwern Coll., Cheltenham
Valentin, M.J.M.M. *f.* French Conv., Newhaven

Callanan, E. Presentation Conv., Thurles
²Cooke, M. Convent of Mercy S., Birr
McCarthy, M. *a.* St. Mary's Conv. S., Charleville
M'Grath, E. Presentation Conv., Thurles

Batchelor, Marguerite *f.* Annecy Conv., Seaford
Carbonnier, M. *f.* Annecy Conv., Seaford
O'Brien, M. St. Mary's High S., Midleton
Perryman, F. Porth Higher Grade S.

Archdeacon, A.M. Sacred Heart S., Kanturk
Dally, W. The College, Goudhurst
Ellis, M. The College, Goudhurst
²Evans, R. Old College S., Carmarthen
Freemantle, D.M. Beaulieu S., Parkgate, Swanwick
Hopkinson, G.B. Longfield, Belfast

Andrews, K.M. Stamford H., Edgbaston
Cesson, R. *f.* Annecy Conv., Seaford
Greene, N. Cahir Convent S.
Ladell, D.A. Alwyne Coll., Canonbury
Moloney, N. *a.* St. Mary's Conv. S., Charleville
O'Mahoney, A. St. Mary's Conv., Bruff
Riordan, N. Cahir Convent S.
²Rumsey, O. Notre Dame High S., Clapham Common
Smith, I.M. Southoe H., Richmond

Fréville-Ennal, H.M. *f.* French Conv., Newhaven
Martin, E.J. Penventon S., Redruth
Noble, E. Knock Intermediate S. & Kindergarten
O'Shaughnessy, M. St. Mary's Conv., Bruff
Spinks, A.R.M. Beaulieu S., Parkgate, Swanwick
Stewart, M. The College, Goudhurst
Walshe, N. St. Mary's Conv. S., Charleville
Waterhouse, A.F. Clatford H., Southampton

Davies, M. Porth Higher Grade S.
²Gatward, M. Private tuition
Jacobs, J. Southend College
Johnson, L. Notre Dame High S., Clapham Common
Rohan, A.C. St. Mary's High S., Midleton
Stegmann, N.R. Belgrave H., Wandsworth Common

Allman, N.L. High S., Hazel Grove
Buckley, N. Sacred Heart S., Kanturk
Jackson, J.K. Wincham Hall S., Lostock Gralam
Morris, M. Conv. of the Compassion, Acock's Green, B'ham
Wilgar, E. Princess Gardens S., Belfast

McCabe, J. St. Mary's Dominican Conv., Cabra, Dublin

Browne, N. Convent of Mercy S., Birr
Harvey, M.M.I. High Bank S., Harlesden
Tassell, H.L. The College, Goudhurst

Dean, G.L. Ellerslie H., Worthing

Evans, Gwladys *d.* Higher Elem. S., Pentre
Rohan, M. St. Mary's High S., Midleton

Noone, C. St. Mary's Dominican Conv., Cabra, Dublin
White, M.E. *a.* Cole Hill S., Tamworth

LOWER FORMS EXAMINATION.—PASS LIST, MIDSUMMER, 1910.

BOYS.

Addis, M.A.
St. Aloysius' Coll., Hornsey Lane, N.
Aitken, H.B. Southport Comm. Coll.
Aldrich, G.H. Eutry H., Diss
Amerzaga, L. St. Joseph's Coll., Norwood
Angel, R.L.
Hillmartin Coll., Camden Rd., N.W.
Arguello, J. St. George's S., Shirley
Arnsby, E.J.
Hillmartin Coll., Camden Rd., N.W.
Atkinson, A. Willesden Preparatory S.
Avrigunaga, J. St. Joseph's Coll., Norwood
Baker, B.
St. Aloysius' Coll., Hornsey Lane, N.
Banwell, H.G.
Tankertou Coll., Tankerton-on-Sea
Barclay, J.F. Bailey S., Durham
Barnes, J. Barry Secondary & Comm. S.
Barton, F.W. St. John's Coll., Brixton
Batcheller, S.C. Tudor Hall, Hawkhurst
Baterden, C. Salesian S., Battersea
Bedbrook, D.U. Richmond Hill School
Bellamy, A.V. Eversley S., Stamford
Bench, A.G.R. The Douglas S., Cheltenham
Bentall, P.J.
Lindisfarne Coll., Westcliff-on-Sea
Bergeudorff, O. The College, Weston-s.-Mare
Beynon, A. Barry Secondary & Comm. S.
Bird, M.E. Stafford Coll., Forest Hill
Blackborow, B. Salesian S., Battersea
Blandford, G.A.E. University S., Rochester
Bleach, L.L.C. Preston Gram. S., Brighton
Blurton, E.B.
Hillmartin Coll., Camden Rd., N.W.
Board, R.D. The College, Weston-s.-Mare
Bodenham, S.W. The College, Weston-s.-Mare
Bodin, A. Marist Bros.' Coll., Grove Ferry
Bokun, G.A. Tudor Hall, Hawkhurst
Boote, E. St. George's S., Shirley
Booth, C.C. St. Mary's High S., Romford
Brereton-Barry, R. Private tuition
Bret Harte, G.S. St. George's Coll., Weybridge
Briggs, S.P. University S., Rochester
Brinsdon, H.S.
All Saints' Choir S., Clifton, Bristol
Brooke, A.A.
Salesian S., Wandsworth Common
Brown, C.C. Endcliffe Coll., Sheffield
Brown, D.C.
The Modern S., Streatham Common
Brown, G.M. Carden S., Peckham Rye, S.E.
Buggy, F. Highfield S., Chertsey
Bumford, A.R. Barry Secondary & Comm. S.
Burnand, B. St. John's Coll., Southsea
Butler, G.W.
Salesian S., Wandsworth Common
Byrne, B.G. Salesian S., Farnborough
Byrne, C. Dominican Convent, Wicklow
Candy, C.
Boys' Prep. Coll., Oxford Rd., Abingdon
Carreras, M. Christian Bros.' Coll., Gibraltar
Carter, D. Newquay College
Carter, I.P. Newquay College
Cattell, G.T.
St. David's Conv. High S., Brecon
Cerina, H. Salesian S., Battersea
Chapman, G. Highfield S., Chertsey
Charman, J. The College, Weston-s.-Mare
Chipulina, P. Christian Bros.' Coll., Gibraltar
Christmas, E.F. Beverley S., Barnes
Clancy, J. Salesian S., Battersea
Clarke, G.E. The College, Weston-s.-Mare
Clarke, R.A. Devonshire H., Orpington
Clarkson, J. Salesian S., Battersea
Clavers, R. Marist Bros.' Coll., Grove Ferry
Clay, P. Salesian S., Battersea
Clements, D.S. Grove H., Highgate
Coe, J.D.J. Eversley S., Stamford
Cooke, A. St. John's Coll., Southsea
Cooke, C.H. Newquay College
Cooper, A. Highfield S., Chertsey
Cooper, F. Highfield S., Chertsey
Cooper, R.J.
Salesian S., Wandsworth Common
Cooper, W.H.C. Beverley S., Barnes
Copland, R.F. Richmond Hill School
Copus, L.W. Devonshire H., Orpington
Cordy, F. Eastward Ho! Coll., Felixstowe
Costa, L.G. Stafford Coll., Forest Hill
Coutts, D. St. Joseph's Coll., Norwood
Craig, J.J. Eversley S., Stamford
Crake, L. Salesian S., Battersea
Crocker, F.A. Taplow Gram. S.
Cross, B. Intermediate S., Ballyclare
Crozier, W.B.F. Richmond Hill School
Cundall, C. New Coll., Herne Bay
Cunningham, L.V.C.
The College, Weston-s.-Mare
Currie, C.
St. Aloysius' Coll., Hornsey Lane, N.
Curry, T. Bailey S., Durham
Curtis, A.E.S. Beverley S., Barnes
Cutforth, L.E. The Haughton S., York
Dalton, E.M. Margate College
Danson, R.J.C. New Coll., Herne Bay
Davis, G.J. Tudor Hall, Hawkhurst
Davis, J.F.H. The Douglas S., Cheltenham
Davy, K.L. St. Catherine's Coll., Richmond
Decken, W.L. Clapham Gram. S.
Denny, A.F. Salesian S., Farnborough
Denny, C.H. Salesian S., Farnborough
Devilder, M. St. George's Coll., Weybridge
Dimmock, N.H. Grove H., Highgate
Diprose, R. St. Joseph's Coll., Norwood
Donaldson, D.
Hillmartin Coll., Camden Rd., N.W.
Dotto, J.L. Christian Bros.' Coll., Gibraltar
Dyer, K. Tudor Hall, Hawkhurst
Dyke, R.W. Eversley S., Stamford
Eastwood, L.E. The College, Weston-s.-Mare
Eggins, J.K. Mutley Gram. S., Plymouth
Elliott, C. Highfield S., Chertsey
Engelbach, A.E. Private tuition
Enoch, T.E. The College, Weston-s.-Mare
Etheredge, E.O. Taplow Gram. S.
Etherington, H.
St. Aloysius' Coll., Hornsey Lane, N.
Evans, R.S. New College, Herne Bay
Farmer, E. Highfield S., Chertsey
Farr, R.F. Richmond Hill School
Farrow, A.E.B. University S., Rochester
Ferns, T. Salesian S., Battersea
Finnimore, R. Newquay College
Fisher, H.B. Richmond Hill School
Fishwick, K. Newquay College
Fleury, F.G. Stafford Coll., Forest Hill
Fogarty, C.
St. Aloysius' Coll., Hornsey Lane, N.
Foulfoin, M. St. John's Coll., Southsea
Fraser, M. Barry Secondary & Comm. S.
Frosali, J.S. Stafford Coll., Forest Hill
Galt, S.E. Barry Secondary & Comm. S.
Gamlen, H.E. Bailey S., Durham
Garelle, A. St. John's Coll., Southsea
Garnier, M. Marist Bros.' Coll., Grove Ferry
Gerrard, M. St. George's S., Shirley
Gifford, P. Barry Secondary & Comm. S.
Gigli, H. St. Aloysius' Coll., Hornsey Lane, N.
Gilbert, H.F. Cheltonia Coll., Streatham
Gillison, S.N. Mutley Gram. S., Plymouth
Gleeson, L.
Boys' Prep. Coll., Oxford Rd., Abingdon
Goodway, L.R. Richmond H., Handsworth
Grainger, H.L. Willesden Preparatory S.
Grassam, A.W. Stafford Coll., Forest Hill
Gray, R. Bailey S., Durham
Gray, W.A.H. St. George's Coll., Weybridge
Gray, W.L. Broadgate S., Nottingham
Green, P.R.H. The Douglas S., Cheltenham
Grocott, G.H. Margate College
Grosfils, A.J.M.
St. Aloysius' Coll., Hornsey Lane, N.
Gubbins, R.
St. Aloysius' Coll., Hornsey Lane, N.
Hadland, K. Clapham Gram. S.
Hake, C.W. Richmond Hill School
Halsall, P. Southport Comm. Coll.
Hamel, C. Newquay College
Harris, J.B. The Vale S., Maida Vale
Harris, T.M.
Lithend Girls' S., Bishop's Waltham
Harrison, R.J. New Coll., Herne Bay
Haworth, F.R. Heaton Moor Coll., Stockport
Hayward, L.W.
The Modern S., Streatham Common
Head, H.O. Grove H., Highgate
Heale, F.W.
The School, Wellington Rd., Taunton
Hebditch, S.M. Grove H., Highgate
Herbert, N.S.
Lindisfarne Coll., Westcliff-on-Sea
Hickinbottom, F.W.
The Modern S., Streatham Common
Hicks, C.A. New Coll., Herne Bay
Hindson, T. Bailey S., Durham
Hodges, H.N. The Douglas S., Cheltenham
Holstius, O.
St. Aloysius' Coll., Hornsey Lane, N.
Hopkins, K.D. Richmond H., Handsworth
Humphreys, F.L. Taplow Gram. S.
Hunt, A. St. Aloysius' Coll., Hornsey Lane, N.
Huntley, G. Argyle H., Sunderland
Hurwitz, L.I. Argyle H., Sunderland
Hutchin, G.A.
Salesian S., Wandsworth Common
Hutton, A.
St. Aloysius' Coll., Hornsey Lane, N.
Hutton, S.C. Richmond Hill School
James, E. Barry Secondary & Comm. S
Jamieson, J.W. Grammar S., Scorton
Jaques, H.
St. Aloysius' Coll., Hornsey Lane, N.
Jeffery, E.F.J. Taplow Gram. S.
John, E. Barry Secondary & Comm. S.
Johnson, E.C. Endcliffe Coll., Sheffield
Johnson, S.D.
Southampton Boys' Coll. & High S.
Jones, E.H.C.
Lindisfarne Coll., Westcliff-on-Sea
Jones, F.W.V. Taplow Gram. S.
Jones, W.V. Tudor Hall, Hawkhurst
Kaufmann, R.
St. Aloysius' Coll., Hornsey Lane, N.
Kellett, D.A. Bailey S., Durham
Kellock, G.D.
Lindisfarne Coll., Westcliff-on-Sea
Kelly, T.F. St. George's Coll., Weybridge
Kennedy, F.T. The Convent S., Chelsea
Kershaw, E.M.
Lindisfarne Coll., Westcliff-on-Sea
King, D.J. New Coll., Herne Bay
King, F.K. Palmer's Green High S.
King, G.C.H.
Lindisfarne Coll., Westcliff-on-Sea
King, J. Dominican Convent, Wicklow
Kirkhouse, E.S. Grammar S., Scorton
Klüpfel, W.
St. Aloysius' Coll., Horusey Lane, N.
Knobloch, L.
Marist Brothers' Coll., Grove Ferry
Lambert, W.H.E.
St. Catherine's Coll., Richmond
Landemare, H. Salesian S., Battersea
Lander, L.C.
Evelyn High S., Upper Holloway
Latham, I.McD.
Fauntleroy, St. Leonards-on-Sea
Latham, J.H.S. Willesden Preparatory S.
Lavarello, W. Christian Bros.' Coll., Gibraltar
Laxton, S.E. Eversley S., Stamford
Lecourt, P.
Marist Brothers' Coll., Grove Ferry
Lee, S. Highfield S., Chertsey
Le Fevre, E. St. George's S., Shirley
Lendoll, J.G. The College, Weston-s.-Mare
Levers, A. Barry Secondary & Comm. S.
Loetschert, J.H.
St. Aloysius' Coll., Hornsey Lane, N.
Lougher, H. Barry Secondary & Comm. S.
Lougher, I. Barry Secondary & Comm. S.
Lovell, H.C.
All Saints' Choir S., Clifton, Bristol
Lovell, P.C.MacG.
The Douglas S., Cheltenham
Lowdell, J.E. Cheltonia Coll., Streatham
Lynch, R.J. St. George's Coll., Weybridge
Machin, B.M.
Lindisfarne Coll., Westcliff-on-Sea
Mallick J. Dominican Conv., Wicklow
Mallick, L. Dominican Conv., Wicklow
Marchant, H.E. Mutley Gram. S., Plymouth
Marklew, I.G.
All Saints' Choir S., Clifton, Bristol
Marriott, G.V. Grove H., Highgate
Marshall, R.J. Osborne High S., W. Hartlepool
Martinengo, P.J. St. George's Coll., Weybridge
Mason, H. Salesian S., Battersea
Meering, S.H.
Lindisfarne Coll., Westcliff-on-Sea
Mellor, F.S. Southport Comm. Coll.
Melluish, W.D.
Lindisfarne Coll., Westcliff-on-Sea
Metcalfe, C.H. Grammar S., Scorton
McCullum, N.B. Mannamead S., Plymouth
McDonald, T. St. John's Coll., Southsea
McGrail, J.A. Salesian S., Farnborough
McLellan, A. Bailey S., Durham
McMenemy, T.
St. Aloysius' Coll., Hornsey Lane, N.
Miller, J.E. Argyle H., Sunderland
Moncur, J.W. Argyle H., Sunderland
Mooney, H. St. George's Coll., Weybridge
Morasso, A. Christian Bros.' Coll., Gibraltar
Morgan, K.J. The Douglas S., Cheltenham
Morgenstern, F.W.
St. Catherine's Coll., Richmond
Morisou, W. The Hermitage S., Grimsargh
Morley, J.F. St. John's Coll., Brixton
Morton, E. Argyle H., Sunderland
Morton, H.K. St. George's Coll., Weybridge
Moulinier, G. Salesian S., Battersea
Myers, T. Southport Comm. Coll.
Neal, B.H. Devonshire H., Orpington
Nelson, T.A. The Haughton S., York
Nichols, H.L.
All Saints' Choir S., Clifton, Bristol
O'Brien, D.J. St. George's Coll., Weybridge
O'Connor, J. St. Joseph's Coll., Norwood
O'Hara, T.H.
St. Aloysius' Coll., Hornsey Lane, N.
O'Hare, T.P.
St. Aloysius' Coll., Hornsey Lane, N.
Ormiston, W.H.
St. Catherine's Coll., Richmoud
O'Shea, M.
St. Aloysius' Coll., Hornsey Lane, N.
Owen, W.R. Osborne High S., W. Hartlepool
Oxburgh, R.E. Mutley Gram. S., Plymouth
Pain, G.S. Richmond Hill School
Pallett, L.C. St. Catherine's Coll., Richmond
Parker, F. Grammar S., Scorton
Parnell, A.L.
Lindisfarne Coll., Westcliff-on-Sea
Pask, R. Salesian S., Battersea
Pasqual, J.R. Kensey, Launceston
Patman, W. University S., Rochester
Payne, R.W. The College, Weston-s.-Mare
Pearson, G. Salesian S., Battersea
Peet, G.H. St. George's Coll., Weybridge
Perol, M. Marist Bros.' Coll., Grove Ferry
Perry, A.G. Salesian S., Wandsworth Common
Pettitt, M. Bethany H., Goudhurst
Petty, C. St. Mary's Hall, Cardiff
Philbin, L. Salesian S., Battersea
Phipps, H.S. The College, Weston-s.-Mare
Piper, N. Argyle H., Sunderland
Pool, F.E. Newquay College
Pope, G. St. Joseph's Coll., Norwood
Porée, P. Salesian S., Battersea
Powell, G.
St. Aloysius' Coll., Hornsey Lane, N.
Poynor, F.J.R. Stafford Coll., Forest Hill
Preedy, L.J. Richmond H., Handsworth
Price, W.G.
All Saints' Choir S., Clifton, Bristol
Priest, B. The Haughton S., York
Purchase, W.H.G. Clapham Gram. S.
Purvis, J.E. Argyle H., Sunderland
Quinn, D. Salesian S., Battersea
Radford, A.C. St. Catherine's Coll., Richmond
Reddy, S.A. Salesian S., Farnborough
Redmond, G.
Lindisfarne Coll., Westcliff-on-Sea
Rees, G.W. Richmond Hill School
Reeve, H.B.
Lindisfarne Coll., Westcliff-on-Sea
Richard, W.W. Newquay College

BOYS, LOWER FORMS—*Continued.*

Richards, J. Salesian S., Battersea
Richards, K.D. Taplow Gram. S.
Richardson, W.J. Bailey S., Durham
Rimmer, R. Southport Comm. Coll.
Roche, H.S. St. George's Coll., Weybridge
Rock, C.A.S. Tudor Hall, Hawkhurst
Rogers, W. Grammar S., Scorton
Rugeroni, C. Christian Bros.' Coll., Gibraltar
Russo, A. Christian Bros.' Coll., Gibraltar
Rust, H.T. Grammar S., Scorton
Ryder, J.H. Mutley Gram. S., Plymouth
Sacarello, P. Christian Bros.' Coll., Gibraltar
Sage, E.C. Osborne High S., W. Hartlepool
Sampson, L.
Lindisfarne Coll., Westcliff-on-Sea
Saqui, L.V.H. St. George's Coll., Weybridge
Sermin, V.
St. Aloysius' Coll., Hornsey Lane, N.
Shankland, C.R. Taplow Gram. S.
Sherrey, C.P. The Haughton S., York
Shortt, R.J.A. Southport Comm. Coll.
Simmons, A.J. University S., Rochester
Simmons, C.G. Grove H., Highgate
Sinden, K.V. Richmond Hill School
Smales, G.A. Margate College
Smith, E.T. St. Dunstan's Coll., Margate
Smith, F.A. Bethany H., Goudhurst
Smith, G.E. University S., Rochester
Smith, H.E. Cheltonia Coll., Streatham
Smith, H.R. Stafford Coll., Forest Hill
Smith, R. Lindisfarne Coll., Westcliff-on-Sea
Smythe, R.A.
Lindisfarne Coll., Westcliff-on-Sea
Southwell, A.J.W.
Lindisfarne Coll., Westcliff-on-Sea
Spark, E. Argyle H., Sunderland
Spear, A.D.M. Eastward Ho! Coll., Felixstowe
Spencer, E.
Boys' Prep. Coll., Oxford Rd., Abingdon
Staight, D.J. The Douglas S., Cheltenham
Stainton, K.E. Endcliffe Coll., Sheffield
Stark, H. Christian Bros.' Coll., Gibraltar
Steele, H.W. New Coll., Herne Bay
Stephenson, W.
Osborne High S., W. Hartlepool
Stevenson, M. Margate College
Stout, A.G.
The Modern S., Streatham Common
Stuart, L. Barry Secondary & Comm. S.
Sullivan, A. St. John's Coll., Southsea
Suter, P. Highfield S., Chertsey
Swan, W.W.
St. Aloysius' Coll., Hornsey Lane, N.
Sweeting, C.C.
All Saints' Choir S., Clifton, Bristol
Tasker, R.
St. Aloysius' Coll., Hornsey Lane, N.
Thomeuf, L. St. John's Coll., Southsea
Thompson, H.F. New Coll., Herne Bay
Thompson, J. Osborne High S., W. Hartlepool
Thompson, J.E. St. George's Coll., Weybridge
Tierney, W. The High S., Hazel Grove
Tremain, G. Newquay College
Tuddenham, F.G.
Eastward Ho! Coll., Felixstowe
Turnbull, C.L. Bailey S., Durham
Turner, A.R. Evelyn High S., Upper Holloway
Tussaud, G.
Boys' Prep. Coll., Oxford Rd., Abingdon
Urquhart, G.E. Tudor Hall, Hawkhurst
Vasilesco, C.R.
St. Aloysius' Coll., Hornsey Lane, N.
Verano, A. Christian Bros.' Coll., Gibraltar
Vigurs, J.T. Newquay College
Vigurs, R.C. Newquay College
Villejean, E. Marist Bros.' Coll., Grove Ferry
Walker, F.E. Salesian S., Farnborough
Wallace, J.
St. Aloysius' Coll., Hornsey Lane, N.
Wallace, P. Dominican Conv., Wicklow
Walpole, B.
St. Aloysius' Coll., Hornsey Lane, N.
Ward, B.C.M. St. Catherine's Coll., Richmond
Ward, F.J. St. George's Coll., Weybridge
Warwick, L. Intermediate S., Ballyclare
Waters, R.A. Grammar S., Scorton
Waterson, W.J.
The Modern S., Streatham Common
Watson, L.L. Bethany H., Goudhurst
Weber, C. St. John's Coll., Southsea
Weir, A.P. Argyle H., Sunderland
Weir, G.McB. New Coll., Herne Bay
Whelan, L.
St. Aloysius' Coll., Hornsey Lane, N.
Wiggins, L. Salesian S., Battersea
Wilmot, C.R.T. Broadgate S., Nottingham
Wiper, J.L. Argyle H., Sunderland
Woodhouse, D.H. Beverley S., Barnes
Wright, E.N. Tudor Hall, Hawkhurst
Young, C. Southend Gram. S.
Youngman, R. Cheltonia Coll., Streatham

GIRLS.

Abbott, M.D.M. Palmer's Green High S.
Ades, A.R. Elm H., Ealing
Alcock, B.M. The Friends' S., Mountmellick
Allen, M. Girls' Sec. S., Oxford Rd., Abingdon
Ames, G.L. The College, Goudhurst
Armstrong, P.
Carlyle Coll., Clapham Common
Ashman, A.M.
The Convent, Pulteney Rd., Bath
Atkin, P.M.
Seafield, Promenade, South Shore, Blackpool
Atkinson, M.A.
Frankfort High S., Forest Hill
Attwell, I.T. St. John's Coll., Brixton
Atwill, D.H. Gunnerside S., Plymouth
Bacon, K. Girls' Sec. S., Oxford Rd., Abingdon
Bailey, M.K. Hillside Modern S., Wealdstone
Baines, W.M.
Notre Dame High S., Clapham Common
Baker, E.C. 64 Westbourne Gardens, Hove
Bariug, H.H. Alderhurst, Sale
Barlow, A.D. Private tuition
Barnes, M. St. Ursula's S., Westbury-on-Trym
Barry, H.
St. Mary's Dominican Conv., Cabra, Dublin
Batchelor, L. Annecy Conv., Seaford
Beirne, M.F. St. Mary's Conv., Bruff
Bell, F.K. Convent F. C. J., Fallowfield
Bell, L.C.
Knock Intermediate S. & Kindergarten
Bell, M.
Knock Intermediate S. & Kindergarten
Bell, P. Private tuition
Belsham, I.K. The College, Goudhurst
Bennion, E.R. Linwood S., Altrincham
Betts, I. Carlyle Coll., Clapham Common
Birchall, K.R. Private tuition
Blackmore, E.F.
Notre Dame High S., Clapham Common
Bobbett, E.F.
Franciscan Conv. S., Melton Mowbray
Boldero, R.D. Clough S., Redhill
Bowes, L. Convent of Mercy S., Birr
Bradley, G.D.
Melbourne Coll., Thornton Heath
Bradley, S. Lowther Coll., Lytham
Brame, M. Entry H., Diss
Bransfield, C. St. Mary's High S., Midleton
Bray, M.F. Sherwood S., Woolwich
Brett, M. Anby H., West Hackney
Bridge, M. Lowther Coll., Lytham
Bridgland, M.G.M. Palmer's Green High S.
Brierley, M.W. Linwood S., Altrincham
Brister, C.R. Hainault H., Ilford
Broadbent, N. Conv. of Notre Dame, Birkdale
Brock, E.M. The Limes, Buckhurst Hill
Brown, D.F. Convent S., Cadogan St., Chelsea
Brown, I.M.F. The Friends' S., Mountmellick
Brown, R. Convent F. C. J., Fallowfield
Browne, E.
Girls' Sec. S., Oxford Rd., Abingdon
Browne, W.E.W.
The Friends' S., Mountmellick
Bruce, G.L. Stamford H., Edgbaston
Buchanan-Boyd, M.T.
St. Joseph's Acad., Clifton, Bristol
Bull, K.M. Gunnerside S., Plymouth
Bull, M. Annecy Conv., Seaford
Burgess, M. The College, Goudhurst
Burrell, I.J. The Haughton S., York
Bushell, E. Annecy Conv., Seaford
Caldana, L.
Notre Dame de France, Leicester Sq., W.C.
Callaghan, H. Dominican Conv., Wicklow
Cannon, G.M.
Montpellier Coll., Budleigh Salterton
Carroll, E. St. Mary's Convent S., Charleville
Carson, F.M. Lowther Coll., Lytham
Carson, M.E. Lowther Coll., Lytham
Cartwright, D.
Saxonholme High S., Whalley Range
Cary, H.M. St. Ursula's S., Westbury-on-Trym
Cashman, S. St Mary's High S., Midleton
Chappelle, V.G.
Alexandra Coll., Woodside Park
Cheetham, A.
St. Margaret's High S., Forest Gate
Clark, M.G. The College, Goudhurst
Clarke, A. Convent of Mercy S., Birr
Clarke, D.M.
Lynn H., Lower Addiscombe, Croydon
Clarkson, E.
Franciscan Conv. S., Melton Mowbray
Claypoole, A.F. Guelph Coll., Bristol
Cleary, B.
St. Mary's Dominican Conv., Cabra, Dublin
Coath, P.A. The College, Goudhurst
Coffey, J.
St. Mary's Dominican Conv., Cabra, Dublin
Coffin, J.W. Girton H., Chislehurst
Cole, G.M. Hillside Modern S., Wealdstone
Combes, D.K. Clatford H., Southampton
Connery, J. St. Mary's Conv., Bruff
Conway, O.M.
Conv. of Notre Dame, Tollington Park, N.
Cookson, M.E. Lowther Coll., Lytham
Cooney, C.
St. Mary's Dominican Conv., Cabra, Dublin
Copeland, M.E. Ladies' S., Ballyclare
Corke, V.E. Hillside Modern S., Wealdstone
Cosgrave, M.F.
St. Mary's S. Conv. of Mercy, New Ross
Coster, L.E. Alwyne Coll., Canonbury
Cowgill, I.M. Clough End S., Haslingden
Cox, M. Hainault H., Ilford
Crookes, M.E.
Hillside Modern S., Wealdstone
Cross, L. Girls' Sec. S., Oxford Rd., Abingdon
Cubitt-Nichols, M.N.
St. Fagan's, Palmer's Green
Cussen, K. St. Mary's Conv. S., Charleville
Davies, E.M. 10 Caroline St., Bridgend
Davies, H.M. 10 Caroline St., Bridgend
Dawe, H. Girton H., Chislehurst
Deane, R.G.C. Private tuition
Delaney, R.
St. Catherine's Conv. S., Myddelton Sq., E.C.
Delaney, V.
St. Catherine's Conv. S., Myddelton Sq., E.C.
de la Perrelle, B.D. Clatford H., Southampton
Dendy, P. Nuthurst, Sanderstead
Denton, G.A.
Carisbrooke Coll., Walthamstow
Denvir, E. Conv. of Notre Dame, Birkdale
Dilworth, A. Dominican Conv., Wicklow
Dilworth, D. Dominican Conv., Wicklow
Dooley, M. Convent of Mercy S., Birr
Dooley, P. Convent of Mercy S., Birr
Doran, A. Dominican Conv., Wicklow
Dowling, M.
St. Mary's S. Conv. of Mercy, New Ross
Duggan, C. St. Mary's Conv. S., Charleville
Duncan, W.E. Private tuition
Dunford, E.M. University S., Rochester
Dunne, M. Dominican Conv., Wicklow
Edgecombe, J.M. Clough S., Redhill
Edmonds, K.M.
Hermitage Cottage, Upper Higham
Edwards, C.F.
Carisbrooke Coll., Walthamstow
Egan, I. Dominican Conv., Wicklow
Egelstaff, P.M.
Melbourne Coll., Thornton Heath
Elissague, M. Conv. of Notre Dame, Birkdale
Ellis, M. St. Joseph's Acad., Clifton, Bristol
Ennis, L. Dominican Conv., Wicklow
Evans, L. St. Mary's Conv., Bruff
Everard, M.C.K. St. John's Coll., Brixton
Fairclough, K.M. Lowther Coll, Lytham
Finlayson, E. Dominican Conv., Wicklow
Fishwick, D. Linwood S., Altrincham
Fraser, M.M. Clough S., Redhill
Freeman, M.A. Norfolk H., Bexley
French, H.L.
Notre Dame High S., Clapham Common
Funai, D.
St. Catherine's Conv. S., Myddelton Sq., E.C.
Furlong, M.A.
Convent S., Cadogan St., Chelsea
Gains, I.R. Beauclerc H., Sunbury-on-Thames
Gait, E.F. Beauclerc H., Sunbury-on-Thames
Gait, N.E. Beauclerc H., Sunbury-on-Thames
Gait, O.G. Beauclerc H., Sunbury-on-Thames
Galbreath, J.B. Carden S., Peckham Rye, S.E.
Gardner, D.M.
Knock Intermediate & Kindergarten
Garnham, G.
St. Catherine's Conv. S., Myddelton Sq., E.C.
Gatley, B.M. The College, Goudhurst
Gatley, V.R. The College, Goudhurst
Gibbings, A.R. High S., Sidney Place, Cork
Gibory, G.
Notre Dame de France, Leicester Sq., W.C.
Gibson, K. St. Joseph's Acad., Clifton, Bristol
Gilbart, W.A.I. Mansfield H., Cliftonville
Gilmartin, E. St. Mary's High S., Midleton
Goodbody, M.V. Girls' S., Mountmellick
Goodchild, V.L.
St. Margaret's High S., Forest Gate
Gornall, M.
Seafield, Promenade, South Shore, Blackpool
Gowar, L.H.F.
Hillside Moderu S., Wealdstone
Gracey, M.G.M. Palmer's Green High S.
Gray, W.F. Rock Ferry Conv. High S.
Greenberry, M.M. Lark Hill H., Preston
Greene, D.I. Auby H., West Hackney
Greene, K. Dominican Conv., Wicklow
Greenhalgh, E. Lowther Coll., Lytham
Greenhough, J. Highfield S., Bramhall
Griffith-Jones, D.E.
Bedford Hill Coll., Balham
Griffiths, G. Rock Ferry Conv. High S.
Hall, E.H. Carisbrooke Coll., Walthamstow
Hall, R.C. Carlyle Coll., Clapham Common
Hanna, M.R. Ladies' S., Ballyclare
Harbor, E.
Notre Dame High S., Clapham Common
Harris, L. St. Mary's High S., Romford
Harris, L.E.
Lithend Girls' S., Bishop's Waltham
Harris, V.M. Gunnerside S., Plymouth
Harvey, E.G. Rock Ferry Conv. High S.
Hay, C. The College, Goudhurst
Hayes, M. St. Mary's Conv., Bruff
Hayward, I.
Notre Dame High S., Clapham Common
Heevey, M.K. Cahir Conv. S.
Hennessy, M.A.
St. Mary's S. Conv. of Mercy, New Ross
Henwood, D.F.
Melbourne Coll., Thornton Heath
Hewlett, N. 70 Avenue Rd., W. Hartlepool
Hides, E.D.
Seafield, Promenade, South Shore, Blackpool
Hill, N.
St. Mary's Dominican Conv., Cabra, Dublin
Hitchen, H.M. Lowther Coll., Lytham
Hitchings, I.V.
Hill House Coll., Haverfordwest
Hogg, D. St. Hildred's, Southsea
Holland, C.M. Alderhurst, Sale
Holland, F. Dominican Conv., Wicklow
Hooper, M.M.
Newlands High S., Heaton Moor
Horan, B. Convent of Mercy S., Birr
Horwood, M.A.
Beauclerc H., Sunbury-on-Thames
Howard, E.H. Essex H., Saltash
Hudd, C.M.
Montem Street Girls' Elem. S., Finsbury Pk.
Humphreys, M. St. Mary's Conv., Bruff
Inglis, E.L. Alwyne Coll., Canonbury
Inskipp, P. Private tuition
Jackson, A.M. Private tuition
Jackson, W.E.
Newlands High S., Heaton Moor
James, M. Hill House Coll., Haverfordwest
Jee, M. Girls' Sec. S., Oxford Rd., Abingdon
Johnson, D.I.
Southolme High S., Whalley Range
Johnston, G.C.M. St. John's Coll., Brixton
Jones, B.D.F. Highcroft S., Barry
Jones, M.I.
St. Margaret's High S., Forest Gate
Judge, A. St. Joseph's Acad., Clifton, Bristol
Julian, C. High S., Sidney Place, Cork
Kaine, E. Convent S., Cadogan St., Chelsea
Kelly, F.E. Gunnerside S., Plymouth
Kelly, K. Convent F. C. J., Fallowfield
Kendall, B.
Notre Dame High S., Clapham Common
Kilgour, E.
Girls' Sec. S., Oxford Rd., Abingdon
Killwick, E.P. The College, Goudhurst
Knifton, B.V. Northfield, Stamford Hill, N.
Knight, B.M.
Peterborough Coll., Harrow-on-the-Hill
Konski, D. Somerset H., Ramsgate
Krikorian, B.G.
Hillside Modern S., Wealdstone
Lake, D.A. Hainault H., Ilford
Lander, M. Carden S., Peckham Rye, S.E.
Langman, E.G.
Melbourne Coll., Thornton Heath
Ledlie, A.H. The Friends' S., Mountmellick
Lee, I.G. Clatford H., Southampton
Lee, M. Convent of Mercy S., Birr
Leo, B. St. Mary's Conv., Bruff
Lewis, G.F. Highfield S., Bramhall
Lewsey, L.A.M.
St. Margaret's High S., Forest Gate
Linscott, M.T. Carden S., Peckham Rye, S.E.
Little, W.A. St. Kilda's Coll., Clifton, Bristol

GIRLS, LOWER FORMS—*Continued.*

Loam, I. The Convent High S., Ashford
Lyons, R. Mansfield H., Cliftonville
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CONTENTS.

	Page
Henry Weston Eve—In Memoriam	353
Notes	355
More Educational Grievances (Examinations untimely—Troubles of evening technical schools—Weak elementary Arithmetic)—Report on University Institutions receiving Parliamentary Grant—Universities hard up—The Type of Woman Inspector required—Proposed Central Institution for Indian Civil Service Probationers—School Meeting of the four Northern European Countries at Stockholm.	
Summary of the Month	357
Universities and Colleges	358
London—Manchester—Bristol—Hartley (Southampton)—Wales.	
The Educational Ladder	359
Current Events	363
Fixtures—Honours—Scholarships and Prizes—Appointments and Vacancies—Literary—General.	
Economics in the Curriculum:	
I. An English View (*Morning Post*)	365
II. An American View. By H. P. Swett (*Education*)	366
Higher Education of Workers: Address to Cambridge University Extensionists at York, by the Archbishop of York	367
Knowledge and Success: a Warning against Smatterers (*Electrical Review*)	368
Modern Japanese Education: British Influence	370
School Athletics and Health (British Medical Association)	370
Reviews	370
The Political History of England: Vol. VIII, from the Restoration to the Death of William III (1660–1702) (Lodge)—Practical Curve Tracing (Duncan).	
General Notices	373
First Glances	376
Mathematics	379

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Henry Weston Eve was the son of a prosperous Essex corn merchant; his mother was the sister of a well known ecclesiastic—Archdeacon Thorp. He was born at Maldon, where members of his family still reside, in 1837. From Mill Hill, his first school, he passed, at a later age than usual, to Rugby, and, in 1856, entered Trinity College, Cambridge, with a school exhibition. At that date there were no such things as entrance scholarships at Cambridge; but, at the earliest date possible, he obtained a Trinity scholarship. In 1860 he passed out as Eleventh Wrangler and a Second Class in the Classical Tripos, and in 1862 he was elected, on his second trial, to a Trinity Fellowship.

Directly after taking his degree he was appointed to an Assistant Mastership at Wellington College by Dr. Benson, who, as a Rugby master, had learnt his sterling qualities. This post he held from 1860 till 1876 with a break of one year, during which he served as Assistant Commissioner on the Schools Inquiry Commission. There is no need here to enter on the reasons that led him to resign and subsequently to resume his post. It is sufficient to know that they reflect credit on the head no less than on his assistant. It fell to Mr. Eve to organize the Modern Side, and he was one of the first to prove that modern subjects may be made the basis of a liberal education no less strenuous and solid, and far more attractive to the average pupil, than the rigid and exclusive discipline of the classics.

In 1876 he was elected from among a large and distinguished field of candidates to the Head Mastership of University College School. Here he found fuller scope for his rare powers of organization. The school was bound by no ancient traditions, but its bias under his predecessor, himself a distinguished philologist, had been mainly classical. Mr. Eve's endeavour was to hold an even balance between the old and the new learning. In theory every pupil (or, rather, his parents for him) was allowed a free choice of subjects and could frame his own time-table. It is needless to say that such a programme could not be carried out to the letter, and the experiment was not wholly a success. It needed almost a genius to prevent it from being a total failure. We doubt whether any living head master could have worked out term after term the elaborate combinations and permutations that it entailed, and been able by his tact and his disinterestedness to have carried his staff with him. The scheme had at least this advantage, that pupils under it worked with a will and were not condemned, as was then the case at most public schools, to grind away at subjects for which they had no taste and in which they were conscious that they could never excel. At University College School no pupil was set to find the oblative infinitives in Horace, no budding Darwin to hammer out his tale of Longs and Shorts.

Another reform that Mr. Eve introduced was an unmixed success, and it has been adopted by the head masters who have followed him. Each pupil on entrance is attached to a senior master who corresponds to the house master of a boarding school; he looks after the boy's interests throughout his career, advises him as to his studies, acts as his *censor morum* and *amicus curiae*, and keeps in touch with his parents. The gain both to studies and to discipline is great. The idler is checked from playing off one master against another, and the worker is stimulated and directed in his studies. And at the head of all was the Chief, always sympathetic, ready to hear both sides of a case, and to mete out

even justice. "A man of honour himself," writes an old pupil, "he treated us boys as men of honour, and his confidence in us was rarely abused. We answered unwittingly the spirit that was in him."

After twenty-two years, while still in the full vigour of his powers, to the universal regret of his governors, his colleagues, and his pupils, he sent in his resignation. "Never," writes one of his then staff, "have I felt such keen regret as on the day that he announced to us in school that he had sent in his resignation."

Outside and beyond his life as a head master, Mr. Eve's activities were manifold. He was one of the earliest members of the Teachers' Guild, served for many years on the Council, and was a Vice-President. He helped to found the Modern Language Association, and few who were privileged to hear it will forget his presidential address. He was for many years an active member of Council of the Girls' Public Day School Trust. A full bibliography of his various school books and editions of French and German classics would fill the best part of a column. His "French Grammar," produced in collaboration with his colleague, M. de Baudiss, was on its first appearance hailed as an advance both in scholarship and logical definition on any English production, and, though it now finds little favour with the Extreme Left of the Reform Methodists, it still holds its own. That his "German Grammar" is less popular is due not to any inferiority in the work, but to the lamentable fact that German is at a discount in English schools.

But it is on his connexion with the College of Preceptors that we have now more particularly to dwell. Mr. Eve joined the College in 1876, and the same year was elected a Member of Council. In 1883 he succeeded Mr. Isbister as Dean. In temperament and habits of life no two men could have been less alike. Mr. Isbister, who had served the College well and faithfully for many years, was a scholar who shunned society and lived almost the life of a recluse. Mr. Eve was the most sociable and the most companionable of men, with a large circle of acquaintance, both English and foreigners, always accessible if any member had a grievance to urge or a suggestion to make for the advancement of the College, and never happier than when gathering his friends and colleagues round his hospitable board.

Few even of our own readers can fully realize the responsibilities that attach to the special functions of their Dean, or what attainments and qualities the proper discharge of the office demands. It falls to the Dean to control and supervise a panel of some seventy examiners. Every paper set passes through his hands, and, in the case of Mr. Eve, few papers stood the ordeal without some emendation or amendment. To commend his suggestions to the several examiners, most of them past masters in their own subject, needed infinite tact and discretion and involved an enormous correspondence. Only a man who had taken Double Honours at Cambridge, who had studied physical science in Germany, who had mastered French and German and acquired a literary knowledge of Italian and Spanish, could have undertaken the task. How thoroughly the work was done is proved by the rarity of complaints expressed at the General Meetings of members and the satisfaction that was generally afforded by the Dean's replies.

But the Dean of the College of Preceptors is something more than a glorified Examiner-in-Chief. Though he has no executive powers, and sits on the Council only as *primus inter pares*, he is in many ways our Prime Minister. He is placed *ex officio* on all Committees, and it is to him chiefly that the Council look for direction and guidance.

Mr. Eve was faithful to the best traditions of the College and recognized that, though by force of circumstances the College had been led to devote its chief activities to the examination of boys and girls, this work was but subsidiary to the main object with which the College was founded. That object is, in brief, to organize teachers as an independent and learned profession. He clearly saw that to attain this end the first step must be to insist on training as a necessary qualification for entrance to the profession, and he set himself to provide the intending teacher with the means of training. It was at his instance that the College, in 1895, instituted a complete course of training under the direction of Professor Findlay, provided accommodation for the Institute within its buildings, and made arrangements with schools in the neighbourhood where students could practise under supervision the art of teaching.

The time was not ripe for the experiment; head masters who approved it were not then prepared to show their faith in training by works; the number of students who presented themselves was too few to justify the College in continuing so costly an enterprise. But, though it failed, the effort was well worth making. Not only did it serve as a declaration of the College's fixed policy and point the way which Universities and University colleges have since followed, but of the little band then trained under Professor Findlay several have since made their mark in the scholastic world.

Of the part taken by Mr. Eve in the movement for the registration of teachers, the logical sequel to training, we have left ourselves no space to speak. His last public appearance was as the representative of the College at the Conference of Teachers which met last November to urge on the Education Department the unanimous demand of teachers for the appointment of a Registration Council.

That a man of so many parts and accomplishments, who had achieved such success in all he undertook, should have remained comparatively unknown to the outside public, that his name should not be found in "Who's Who," that *liber aureus* of all the talents, is an anomaly; but the explanation is not far to seek. Mr. Eve was no orator, and even in private conversation his utterance was somewhat slow and hesitating; not that he did not know his own mind or that he was timid or reserved in letting his opinions, however unorthodox or unpopular they might seem, be known, but his judicial mind could never lose sight of the other side, and he was scrupulous to a fault in his anxiety never unnecessarily to give offence or wound the feelings of a weaker brother. Moreover, he shunned notoriety, and had a horror of all self-advertisement. So long as the work he had at heart was done, he was content that others should reap the credit.

We have attempted—how imperfectly and inadequately no one can be more conscious than ourselves—to pay a just tribute to the memory of our late Dean. The loss that the

College has sustained is irreparable, but in our mourning it is some consolation to know that the resignation of his Deanery was deferred till he was assured that a fit and competent successor had been found. The epitaph that we would fain see inscribed on his tomb in Highgate Cemetery was suggested, not by a relative or personal friend, but by an impartial critic who had marked and could judge his work from the inside:

He was a verray perfight gentil knight.

One word must be added to express our sincere and profound sympathy with the gracious lady, known to so many as a perfect hostess, who shared all her husband's high thoughts and aided him in all his endeavours.

NOTES.

With all the energy of educational reform up and down the country, and with all the interest that foreign educationists are taking in our problems, we seem to be unveiling more and more of our weaknesses. Why can't we do—is it possible, to the satisfaction of everybody, to do—the right thing in the right way and at the right time? A correspondent complains to the *Times* and other papers that the Civil Service examinations—the most important group of Government examinations—take place in August, when the weather is too hot for exercise of brain or of body; and the *Manchester Guardian* endorses and emphasizes the complaint. Then there is "the deplorable fact that the subject-matter of these competitions has become the groundwork for an extremely elaborate, if only pseudo-scientific, system of cramming"; and so "the horror grows worse." Probably the date of the examinations is not unconnected with the educational periods of study; and perhaps the examiners are capable of dealing with the cram. If we cross to Liverpool we find that tales of discontent have been evoked, with regard to evening technical schools and elementary schools, as one result of a recent informal Conference on education. The Rev. Stanley Rogers, who presided over the Conference, has been inundated with letters of grievance. Paterfamilias thinks that the demands made upon young people attending the evening technical schools are preposterous; but we have no means of judging whether he is educationist enough to have any right to an opinion. Others belabour the employers of labour, "who are willing to take all the profit to be derived from the technical training of their workpeople, but refuse to grant any reduction of the hours of labour in the shop, or to facilitate in any way their attendance at the evening classes." Happily, we had very different reports not so long ago from Yorkshire; and, though we dare say there are not a few backward employers about Liverpool, we would fain hope that the present complaint is somewhat broadly expressed. Some of the letters are "even more emphatic in their condemnation of the results of the training given in the elementary schools." Fortunately, it is not the staff that is blamed: "it is the system that is at fault"; and "the tyranny of the system is such that under it no one, not even the highest official, dare attempt to introduce the slightest innovation, or to alter one jot or tittle of the law as it is administered in the Government offices at Whitehall." We confess we were under the impression that Whitehall had recently developed some flexibility. "What the country wants," says Mr. Rogers, "is that the child at fourteen years of age should know how to read, to write, and to reckon." Reckoning in particular seems to be in a bad way, worse even than geography. There must be some other explanation of all this, apart from Whitehall; but, in any case, it is to be hoped that Mr. Rogers will discover an efficient remedy.

The new form of the Board of Education's Report on Universities and University Colleges participating in the Parliamentary grant shows a welcome improvement. But, as the *Morning Post* points out, "there are one or two matters on which greater detail still is required."

Universities ought to be required, for example, to give an *exact* return of the salaries paid to their staffs instead of merely remarking that the salaries of lecturers range from £150 to £300, without saying how many are near the lower and how many are near the upper figure. Any one with practical experience of the newer English or of the Scotch Universities knows that the question of salaries is a burning one, because the miserable payments frequently made to the junior members of the staff are one of the greatest hindrances to efficiency. Again, the Board really displays excessive modesty in limiting its introduction to the Report to a bare thirteen pages. The introduction to a document which is necessarily crammed with detailed facts and figures ought to aim at placing certain guiding threads in the reader's hands; it should select for comment the parts which are specially worthy of notice; it should point out both possible dangers to be avoided and possible advances to be made.

Perhaps, too, the "Standard Forms for Financial Reports of Colleges, Universities, and Technical Schools," just published in Bulletin 3 of the Carnegie Foundation for the Advancement of Teaching, may suggest a more instructive uniformity of presentation; the number of students attending each course of professional lectures would be informing; and perhaps not a few practically insignificant details might be cleared out.

The grievous lack of funds is but too obvious in the cumulation of different large departments of work in single hands. One man is "Principal and Professor of History and Literature"; another combines "Classics and Philosophy"; a third lectures in English and Spanish. How can they keep abreast of their subjects, to say nothing of research work? The *Morning Post* notes that the Treasury grant, which began at £15,000 in 1889, now amounts to £100,000, and that grants from the Board of Education, the Board of Agriculture, and Local Authorities bring the total public aid to just over £200,000; but that this sum does not represent anything like a net increase to the available sources of the Universities.

It is imperative that the Treasury grant should be considerably increased in the near future. At the present day American authorities appear to spend something over one million a year, and German authorities something under one million a year, on the encouragement of University education, while England spends considerably less than one-quarter of a million. Nor is the specious argument that increased grants from public sources would discourage private benefaction really valid. The private donor is at best uncertain; at worst he is highly capricious, endowing those subjects, usually technological subjects, in which he happens to be interested, and too often neglecting others which have no direct practical application. It would be quite reasonable to make increased local support the condition of increased grants of national money; it is not reasonable to starve the Universities on the chance that sooner or later increased local support may be forthcoming.

Ladies that aspire to become Inspectors of schools will be interested to con the enumeration of the qualifications desiderated by an enthusiastic champion of their cause in the columns of the *Morning Post*. There are more than eight male Inspectors to-day for one woman inspector, "in spite of the fact that girls' schools are more rapidly increasing than boys' schools, and that at any given moment the number of girls in this country is far larger than that of boys." But then see how difficult it is to obtain "the type of woman Inspector required."

She must be, above all else, a woman with a wide outlook on life, one who sees life steadily and sees it whole, a difficult matter for the pedagogue. It is not sufficient for her to hold a high degree; she must have a liberal culture, otherwise she will come into the schools as a specialist, intent on teaching her special subject in a special manner. The competent and discerning Inspector will easily be able to see if the pupils are being made to *think for themselves*—the object of all teaching—and if suitable discipline is being maintained. Nothing else really matters in education but discipline and the development of the power of thinking. But the woman inspector must not only be a woman of judgment; she must also be an experienced teacher of pupils of all ages, one who has taught successfully and has studied child nature so that she will know what can and what cannot be expected from pupils at different stages. The Inspector should have studied various types of schools and have made herself acquainted with the work and ideals of the great educationists of the past; she will then realize, what is seldom realized to-day, that good teaching is the same in elementary and secondary schools, and that there need exist no impassable barrier between them. Again, a knowledge of present-day education in other countries would be invaluable; we have much to learn from France and Germany, and, though it is a mistake for one country to copy another, it may well adapt what is best in another country to the needs of its own. Thus the ideal woman Inspector will be a highly educated, widely read teacher of many years' practical and successful experience, a woman of great judgment and much sympathy, conservative in her care of all that is best in the older system and progressive enough to welcome all that is good in the new.

Of course, such a paragon would prove a better Inspector of girls' schools than a mere man Inspector: and she would pick wonderful holes in boys' schools, if she got the chance. Why, "it is conceivable (though heterodox) that even the Head Master of Eton might learn something from the visit of a first-rate woman Inspector." Readily conceivable; never mind the heterodoxy. And no doubt we should not look to her in vain "for the maintenance of a high standard of work, for the encouragement of originality and of experiments of all kinds."

The British government of India is a very large and a very difficult business, and the recent unrest has naturally led to closer consideration of the circumstances under which our young competition-wallahs begin to tackle their work. A new ukase, following a suggestion of Lord Reay's Committee, prescribes two years' probationary training instead of one; that is to say, the scheme returns to the position before 1892, and the competition age becomes twenty-one to twenty-three. And now a correspondent of the *Times* (in large type) starts the notion of a central institution for the probationers—"the provision of a training college in the vicinity of London and under the principalship of a sympathetic officer fully acquainted with Indian ideas and ways." "A central institution would afford opportunities of personal interest in the probationers by the highest authorities, which would be of great moral value and which under the existing system has seemed non-existent." All this appears to be inspired by the admitted gulf between official Englishmen and Indians, and the admitted fact "that, undoubtedly, there are occasions when unintentional offence is given by newly fledged civilians owing to their unfamiliarity with Indian customs and ways of thought." There is reason, however, to doubt whether there are not other occasions of offence proceeding from other causes. But this new idea seems strangely fatuous. No official that is a gentleman will ever give offence, and no newly fledged civilian, drilled as ever he may be drilled under immediate oversight of the authorities here, can be expected to stand out against the established social code of his official circle in India. Besides, where shall you find greater names in Indian administration than Warren Hastings, Sir John Malcolm, Sir Thomas Munro, &c.? They went out as mere boys; and did they need to be specially indoctrinated in social behaviour? No; and why? The whole question is simplicity itself—if it is squarely faced. And why not face it squarely?

The tenth School Meeting of the four countries in the North of Europe was held this time at Stockholm on August 9 to 12; and the attendance was scarcely less than at the last meeting five years ago in Copenhagen. The six or seven thousand members had to spread themselves over four meeting places: the two churches on Blasieholm and Skeppsholm, the hall of the Academy of Music, and the Svenska Teater—the King himself on one of the days being present as a hearer for a couple of hours, first at one church and then at the other. It was almost a matter of course that the papers this time were of an ordinary, unexciting character, for the questions that agitated the various countries are now for the moment settled, and the schools are progressing quietly on the new lines. Norway had her secondary schools in the melting-pot in 1896; Denmark in 1903; and Sweden in 1904. In Finland, also, a Government Commission presented its recommendations in 1908; but in the troubled condition of the country no steps have been yet taken towards carrying them out.

The four evening meetings, of a somewhat different character, were a great success. On Tuesday there was an exhibition, on the athletic ground at Idrottsparken, of organized school games; and on Wednesday there were four concerts. On Thursday, twenty steamers conducted the party down the stream to Vaxholm and back. As they threaded their way in single file along the tortuous course, which is the only approach for larger vessels, it was easy to imagine how difficult might be the task of a hostile fleet making its way past the forts to the capital. On Friday came the farewell meeting in the famous open-air museum at Skansen, after which there was ample opportunity to visit once more the culture-historical collections and exhibits dotted about the rocky park in ample variety.

Dr. Heinrich Zimmer, Professor of Celtic in the University of Berlin, died in his fifty-ninth year. He was one of the greatest Celtic scholars of the century. He wrote a series of articles dealing with the early Welsh Church, and had in hand an Irish dictionary, but it is feared most of the materials were destroyed by fire some years ago. He was an ardent supporter of the Eisteddfod.

SUMMARY OF THE MONTH.

The Board of Education has issued a return by each County Council in England and Wales (except London) of the rates levied for elementary education and of the rate levied for higher education. For higher education Glamorganshire is most heavily rated, the rate being 3¼d. in the £, and bringing in £43,030. Eleven counties levy a rate of 2d. or more, but less than 3d.

	Rate.	Amount raised.
	d.	£
Yorks: West Riding	2·97	92,948
Cardigan	2·88	2,647
Monmouth	2·73	13,074
Denbigh	2·46	6,096
Merioneth	2·31	2,049
Herts	2·13	14,853
Cheshire	2·12	30,746
Westmorland	2·10	3,771
Flint	2·10	3,636
Pembroke	2·10	2,813
Salop	2·00	11,131

A number of counties levy a smaller rate than ½d. in the £: Devon, Dorset, Hereford, Lincolnshire (three divisions), Notts, East Suffolk, West Suffolk, East Sussex, and the North Riding of Yorkshire. The Holland Division of Lincolnshire raises nothing for higher education; the Kesteven Division, £10 only; Hereford, £35; East Suffolk, £58; and Dorset, £100. Only two counties raise more than £50,000—namely, the West Riding, £92,948, and Lancashire, £65,082.

The Board of Education has issued as a Parliamentary Paper [Cd. 5329] the new grant regulations for technical schools, schools of art, and other forms of provision of further education in England and Wales. The regulations came into force on August 1. In the prefatory memorandum it is stated that the changes are mainly for the purpose of bringing out more clearly the intentions of the regulations and guarding against irregularities which have been apt to grow up in practice. The Board are, however, conscious that the regulations, which have come into existence by a process of gradual development from the directory of the former Department of Science and Art, are not as a whole well adapted to the conditions under which the instruction which they are designed to aid is now given. Largely owing to the activities of Local Education Authorities and other bodies, various new types of school and class have come into existence since the passing of the Education Act of 1902 which were not directly contemplated when the regulations were framed. The Board hope, therefore, to issue, before the end of 1910, a body of new regulations which will come into force on August 1, 1911, and will make more adequate provision for the co-ordination of continuation schools by the Local Education Authorities, for the grouping of subjects into organized courses, and the improvement of the attendance of the students, without which little further progress is likely to be made, and for the special needs of agricultural institutes and of organized day continuation schools for boys and girls leaving the elementary schools and needing a course of further education related to the requirements of their future occupations. In particular, it will be necessary to provide simpler and more suitable means of allocating the grants payable under the regulations of the Board of Education to institutions of University rank, and for co-ordinating these grants with those paid to the same institutions by the Treasury. Separate regulations will accordingly be arranged for this purpose.

During September the Board of Education will continue to exhibit at their offices in Charles Street, Whitehall, a collection of modern language text-books. This collection has been formed by a committee of the Modern Language Association, who are alone responsible for the selection of the books. The aim of the Association has been to make the collection as representative as possible of the various methods now advocated for the teaching of modern languages; books which are generally accepted as obsolete have been excluded. The Board of Education feel that this collection will be of interest and value to many teachers and other persons who are not members of the Association, and it is hoped that they will take advantage of this opportunity of familiarizing themselves with the contents of this collection. In 1908 the Board became possessed of a collection of about five hundred text-books in use in French elementary and secondary schools. These will also be displayed. The collection will be on view on week-days between the hours of 10 a.m. and 5 p.m., except on Saturdays, when the closing time will be 2 p.m.

Welsh public authorities are taking steps to memorialize the Civil Service Commissioners on an alleged practical disqualification of pupils from Welsh schools proposing to sit as candidates at Civil Service examinations. The contention is that, although out of 14,000 pupils attending the Welsh secondary or intermediate schools some five thousand annually sit at written examinations at least fully up to the educational standard of the Civil Service examinations, they are by the regulations of the Commissioners in effect excluded from those examinations. This is due to the fact that the examination syllabus of the Commissioners cannot be assimilated with the curriculum imposed upon the Welsh intermediate schools by the requirements of the Board of Education and the Welsh Central Board, the two controlling authorities in Welsh education. As a result of the increasing demand for the teaching and study of Welsh, attributable in part to the practice of making a knowledge of Welsh an essential qualification for public appointments in the Principality, seventy-eight out of the ninety-six intermediate schools of Wales have, with the approval of and largely at the instance of the Board of Education, now included Welsh as an essential part of their curriculum.

The annual report just issued by the Board of Education predicts that in a short time all the schools will include the study of Welsh in their ordinary course. But among the language requirements of the Commissioners two out of three specified languages are made obligatory, the three specified being Latin, French, and German. All the Welsh pupils take Latin; but those who take Welsh cannot also take either French or German, and are consequently disqualified to sit at the Civil Service examinations. The Commissioners are to be asked to so modify their syllabus as to permit of these sitting on equal terms with their fellows.

As the result of representations just made, the Commissioners have added Cardiff University College to the list of Civil Service examination centres, and have notified their preparedness also to add Aberystwyth and Bangor Colleges to that list when the authorities of those colleges can provide the necessary accommodation and facilities for the examinations.

A deputation of Irish teachers and members of Parliament waited on the Chancellor of the Exchequer (July 28) on the subject of Irish teachers' pensions. Mr. Mansfield, the spokesman, said that the Irish teachers were in an inferior position to their Scottish and English confrères. So bad was the provision that 111 aged and disabled teachers were in the workhouses.

Mr. Lloyd George: That is a great scandal.

Mr. Mansfield: Many others are receiving old-age pensions.

Mr. Lloyd George, in reply, said that on a former occasion he had given them a sympathetic answer, and it was not mere official sympathy, for he was a schoolmaster's son himself. The state of things pointed out he knew to be accurate, and it was a shame and a scandal to the Empire. It was quite indefensible. He definitely promised that they should have equal treatment with Scottish and English teachers. Later on he would have to provide three or four millions for disabled workmen throughout the Kingdom, and he promised to consider whether they could not at the same time deal with the teachers' fund, which was on a very unsatisfactory basis altogether.

At the Oxford Local Examinations held in July, boys were examined at 221 centres and girls at 261 centres. The total of candidates was 20,896 (excluding the Dunedin, Invercargill, Oamaru, Chefoo, and Hong-Kong centres), 3,016 Preliminary, 7,443 Junior, and 10,437 Senior. Of these, 2,574 Preliminary, 5,260 Junior, and 7,135 Senior passed, making a total of 14,969. There was a decrease in the percentage of passes in all three grades. In the First Class there are 329 Senior candidates, against 232 last year. H. H. Crabtree, Secondary School, Todmorden (Mr. R. S. Smith), and J. Senior, Wakefield Grammar School (Mr. M. H. Peacock), are bracketed equai for the first place. Next is H. E. Macklin, Wimbledon College (Rev. D. Considine). The exhibition of £30 offered to the boy candidate placed highest is divided between Crabtree and Senior, and that for girls is awarded to M. E. H. Lloyd, Bedford High School. The Hatherton Scholarship has been won by P. Hartill, Wolverhampton centre; the Silver Medal of the Royal Geographical Society by G. A. Caton, Victoria Grammar School, Ulverston;

and the Bronze Medal by G. A. Wood, Bede Collegiate School, Sunderland. There are 237 Junior candidates in the First Class, compared with 276 last year. For the first position, three candidates are bracketed equal—S. L. Green, Technical College Secondary School, East Ham (Mr. W. H. Barker), and S. F. Grace, and J. I. Smith, St. Francis Xavier's College, Liverpool (Rev. J. Browne), among whom the scholarship of £10 for the boy candidate placed highest in the Honour list will be divided. A similar scholarship for girls is gained by E. D. Horton, Girls' Pupil-Teachers' Centre, Boston. H. B. Freeman and W. P. Woodall, Dudley Grammar School, are recommended for the Silver Medals of the Royal Geographical Society. Of the Preliminary candidates, forty-six are placed in the First Class, an increase of nine on last year. The first place is gained by H. C. Macnamara, Mount St. Mary's College, Chesterfield (Rev. P. L. Wolfe). For the second position, there is a tie between M. Bévenot, Mount St. Mary's College, Chesterfield, and H. V. Mallison, Wyggeston Grammar School, Leicester (Rev. J. Went).

A SCHOOL of aviation (says *Nature*) is to be established near London in memory of the late Mr. C. S. Rolls. A sub-committee of the Aerial League has had the scheme under consideration, and its cost for the first year is likely to be £2,500. The primary aim of the school will be to provide training in aeroplane manufacture and flight, and to obtain a class of men grounded in the subject from beginning to end, including such laboratory and theoretical work as funds and the gifts of apparatus may permit. The laboratory will be open for the use of students from technical institutions already providing elementary classes in the theory of flight, and also for public demonstrations in order to spread an interest in aeronautical science. Men who have undergone courses of training in engineering schools and competent engineers and mechanics will be eligible as students. The practical work of the students will be directed to securing machines offering greater stability and trustworthiness, lower power and fuel consumption, diminished capital cost and expense of maintenance, and a higher factor of safety than the apparatus now used. In order that an early start may be made, two machines are to be bought at once, and the students will build all further machines, and also those of selected inventors whose ideas are judged to be worthy of construction and practical trial. The funds will be administered by an independent committee of management, including practical men of science. Mr. Patrick Y. Alexander has offered to equip the proposed laboratory with the necessary practical apparatus. The new institution will probably be called the Rolls Memorial School.

IN order to secure uniformity in the statistics of higher education, the Carnegie Foundation for the Advancement of Teaching has issued (Bulletin No. 3) a series of standard forms for financial reports of colleges, Universities, and technical schools. These forms are the result of a prolonged inquiry concerning the practice of Universities and colleges in the United States in the rendering of public financial statements of their receipts and expenditures. The object of the forms is to make it easy for students of education and others to answer the questions. What is the total income of a given institution for the year? What is its annual expenditure? What are the assets at the end of the year? The forms are to be commended to the attention of officials responsible for preparing balance sheets and other statistics of Universities and colleges in this country.

DR. HERBERT KYNASTON (originally Snow), residentiary Canon and Professor of Greek and Classical Literature, Durham, died at Eastbourne, after a long illness, aged seventy-five. He was born in London and educated at Cambridge, where he was a scholar of St. John's, gained the Porson Scholarship (on its first award, in 1855) and the Camden Medal and the Sir William Browne Medal (Latin Ode, 1856), was bracketed Senior Classic with three others (including Sir John Seeley) in 1857, and elected a Fellow of his College in 1858. After holding an Assistant Mastership at Eton from 1858 to 1874, he was appointed Principal of Cheltenham College, where he remained for fourteen years. In 1889 he went to Durham. His reputation as a scholar is based mainly on his well known edition of Theocritus. He took much interest in sport as well as in public affairs. In 1856 he rowed in the Cambridge eight, and in 1857 he stroked the boat.

THE VERY REV. EDWARD CHARLES WICKHAM, D.D., Dean of Lincoln, died at Sierre on August 18, in his seventy-sixth year. He was educated at Winchester and at New College, Oxford; took a First Class in Moderations and a Second in Greats, gained the Chancellor's Prize for Latin Verse (1856) and the Latin Essay Prize (1857), was elected a Fellow of his College, and served as Tutor 1859–73. He did much for the efficiency of his College and took an active part in abolishing the old celibate restriction on fellowships; indeed (says the *Times*), "Wickham gave his own College the distinction of showing the way to a revolution which has furnished the very foundation of the modern system in both Oxford and Cambridge." From 1873 to 1893, he was Head Master of Wellington College, which gained both in numbers and in reputation under his guidance. On going to Wellington, he married Miss Agnes Gladstone, the eldest daughter of the late Rt. Hon. W. E. Gladstone. He was essentially a scholar, with nice critical taste, as shown in his elaborate edition and his prose translation of Horace. As a preacher, he was more concerned for personal religion than for dogma or ecclesiastical system or oratory.

THE REV. ROBERT HARLEY, M.A., F.R.S., died at Forest Hill in his eighty-third year. He was born in Liverpool, and educated at a private school at Blackburn, and at Airedale (now the United) College, Bradford. He was a Congregational minister at Brighouse (1854–68), Leicester (1868–72), Oxford (1886–90), and Heath (1892–95); Professor of Mathematics and Logic at Airedale College, 1864–68; Vice-Master of Mill Hill School, 1872–81; and Principal of Huddersfield College, 1882–85. At Oxford he took a leading part in the foundation of the Mathematical Society, and received the honorary degree of M.A.; he was the senior Fellow of the Royal Astronomical Society, having been elected in 1854; and he was made a Fellow of the Royal Society in 1863. He contributed a large number of papers in pure mathematics and logic to various technical publications.

UNIVERSITIES AND COLLEGES.

London. THE five University tutorial classes held under the auspices of the University of London Joint Committee for the Promotion of Higher Education for Working People having been very successful, and the demand for such classes being widespread, the Joint Committee has decided to establish a number of additional classes. Next year, therefore, instead of five there should be a dozen of these classes, each composed of thirty men and women pledged to a three years' course of study in economic subjects and in sociology. In addition to the existing classes at Battersea, Clerkenwell, Croydon, Tottenham, and Camden Town (Working Men's College), it is proposed to establish classes at Camberwell, Morley College (Waterloo Road), Fleet Street (a printers' class, probably at the rooms of the London Society of Compositors), Kentish Town, Southall, and the Working Men's College. The fees in these classes are quite low, generally not more than 2s. a session, and efforts are to be made to render available for the students all the important books. Working people within reach of any of the centres given who would be willing to join a class, or who would wish further information, should apply to the Organizing Secretary, Joint Committee for the Promotion of the Higher Education of Working People, South Kensington, S.W.

Manchester. THE annual statement of the Vice-Chancellor (Sir Alfred Hopkinson) shows that the total number of students in the several Faculties in the past session was 1,699, or, allowing for forty-two students entered both as science and medical students, 1,657. Of this number, 353 were women. In addition there were 202 persons attending evening classes, besides about 200 students who attended lectures on railway economics and another 200 who attended courses in law and economics at the Bankers' Institute. The Council and Senate have decided that it is desirable to establish another Professorship of Law under conditions providing that the professor shall devote the main portion of his time to the chair. New botanical laboratories are to be erected near Coupland Street, adjoining the north-west corner of the old main block of Owens College buildings. A course of popular lectures has been arranged for Monday evenings in next session, and in connexion with the Workers' Educational Association classes will be held again at various centres. It is expected that new classes will be formed at four or five more centres, and if larger

funds were available the work might be extended as further inquiries and applications for classes are being received. In regard to halls of residence, it is announced that the new building adjoining the house known as "The Oaks," on the Behrens Estate, will be ready before the opening of next session, and, together with the house, will accommodate sixty-two students.

Bristol.

An influential deputation waited on Mr. Hobhouse, Parliamentary Secretary to the Treasury, to urge the claim of the University to a yearly grant of £2,000 for examination and administrative expenses, a concession from the Treasury enjoyed by the Universities of Manchester, Birmingham, Liverpool, Leeds, and Sheffield. Hitherto this grant has been withheld on the ground that it was intended shortly to pool these grants with the Parliamentary "University College" grants made for teaching purposes and distributed under the advice of a Standing Committee. The deputation strongly urged that Bristol should, until such change, be placed on the same footing as the other principal Universities. Mr. Hobhouse acknowledged that a case had been made out, and undertook that Bristol should be placed on the list as from April last until such time as the proposed rearrangement should come into effect.

Southampton—Hartley.

It is distinctly a matter for congratulation (says the *Bournemouth Echo*) that the influential deputation which waited upon the Chancellor of the Exchequer on behalf of the Hartley University College was able to prevail upon the Chancellor of the Exchequer to vary the decision of the Treasury in regard to the Government grant. True, the deputation, of which Mr. Montefiore, the acting president, was spokesman, did not succeed in obtaining all they desired—a promise that the grant would be definitely continued; but the concession granted by Mr. Lloyd George that the money would be paid up to the end of the financial year, upon the promise that an effort would be made to raise more money locally, was nevertheless satisfactory. We know now what the Treasury wants. It wants to see new college premises erected and greater support given to the institution. The Mayor of Southampton has promised to give his personal attention to the matter of raising funds, and we are sure that all friends of educational progress in Southampton and in other parts of Hampshire will generously assist his worship in his laudable effort. There is already a scheme afoot to purchase a new site for college premises, and this, too, will doubtless be pushed forward now that the Government's requirements are definitely known. It is almost superfluous to add that the Hartley College is doing excellent work, and it would be an irreparable loss to local education were it to become defunct.

Wales.

An echo of the Board of Education's criticism of the imperfect knowledge of English possessed by Welsh secondary-school pupils (says the *Western Mail*) is forthcoming in an important statement just issued by Mr. J. Mortimer Angus, the Registrar of the University of Wales. This statement, following so closely upon the heels of the condemnatory report recently issued by the Board of Education, justifies the conclusion that the poverty of the English written by the majority of the pupils in the Welsh intermediate schools, to which reference is made in the Board's report, has also come under the observation of the professors of the Welsh University.

Mr. Angus states that the University is desirous of encouraging among those who are to become University students wider reading in English literature and the acquisition of greater proficiency in writing English correctly and well. With this object it has resolved to make certain important changes, which will come into operation for the Matriculation Examinations of 1912 and subsequent years. The English language and the history of England and Wales will no longer be combined as one examination subject. The syllabus in English language will be amended by the introduction of composition as a subject in which all candidates must satisfy the examiners, historical grammar being at the same time omitted, and by the prescribing of several works for general reading in English literature, as well as one for more detailed study. This separation of subjects will affect exemption from matriculation by virtue of the Central Welsh Board certificates. Hitherto English language and literature have formed two separate subjects at the Central Welsh Board examinations. It is evident that the changes now proposed by the University will involve the fusing of these two subjects into one, under the general heading of "English language."

THE EDUCATIONAL LADDER.

Bedford College for Women.—Research Studentships: Geology, Miss M. Heslop, M.Sc. Durham; Chemistry, Miss M. Walker, Bedford College.—Entrance Scholarships: Pfeiffer (Science), £50 a year for three years, Miss W. R. Smyth, North London Collegiate School; Henry Tate (Science), £50 a year for three years, Miss F. M. Lunniss, Cambridge County School; Clift-Courtauld (Arts), £30 a year for three years, Miss G. A. L. Symes, High School for Welsh Girls, Ashford.—In Training Department: Scholarship, £20, Miss E. T. Thornicroft, B.A. Dub., Natural Science Tripos Cambridge, Newnham; Special Bursary, £15, Miss V. M. Atkinson, Mod. Lang. Oxford, Somerville; Bursaries, £10 each, Miss C. Harvey, B.Sc., South-Western Polytechnic; Miss E. R. Chubb, Cambridge Higher Local (various distinctions); Miss C. H. Tod, Hons. Mods. Oxford, Somerville.—Early English Text Society's Prize: Miss L. S. Benison and Miss J. M. Purves.

Bradfield College.—Foundation Scholarships, 90 guineas per annum: E. B. Brooke (Mr. R. Burmann, Arlington, Grayshott, Haslemere) and H. J. Walker (Mr. E. A. Cooper, Orleton School, Sunninghill, Scarborough), equal, and K. H. Hugh Jones (Mr. R. M. Hugh Jones, Colet House, Rhyl). Simonds Exhibition, 45 guineas per annum: D. A. de C. Bellamy (Bradfield College). General Exhibitions, 30 guineas per annum: H. H. W. Watling (Mr. R. M. Hugh Jones, Colet House, Rhyl), J. Elgood (Junior School, Bradfield College), R. W. L. Edginton (Bradfield College), J. E. H. Coombes (Rev. W. A. Renwick, St. Michael's College, Tenbury), H. D. Wood (Mr. C. F. S. Wood, Woodhurst, Westerham), and J. F. Alcock (Bradfield College).

Cambridge: Newnham College.—Entrance Scholarships awarded on the Cambridge Higher Local Examination: £50 a year for three years, Clothworkers' Scholarship to M. Finlayson (Westoe Secondary School, South Shields), for Natural Science; College Scholarships to L. M. Swain (South Hampstead High School) and M. Chambers (Cheltenham College), both for Mathematics; Gilchrist Scholarship (tenable either at Newnham or Girton College), to E. Dutt (Roedean School, Brighton), for Mathematics; £35 a year for three years to K. E. Perrott (Bromley High School), for Natural Science, and M. Taylor (Blackheath High School), for History. Liverpool Clough Scholarship of £50 a year for two years: H. M. Paterson (East Liverpool High School), for Classics. On special examinations held at Newnham College in March two scholarships of £50 a year for three years were awarded: A Classical Scholarship to C. Keith (Edinburgh University) and a Mathilde Blind Scholarship to D. E. Keatch (James Allen School for Girls, Dulwich) and E. Ord (Clifton High School), equal, for Modern Languages. Arthur Hugh Clough Scholarship for fourth-year students: Miss M. M. Hardie (Classical Tripos, Part I, 1909, Cl. I, Div. 2). Marion Kennedy Studentships: Miss C. M. Ryley (Historical Tripos, First Class in Part I, 1909, and Part II, 1910) and (renewed) Miss J. F. Cameron (Mathematical Tripos, 1908, equal to tenth Wrangler). Bathurst Studentship: Miss E. M. M. Hume (First Class in Natural Science Tripos, Part II, 1910).

Cambridge University.—Frank Smart Studentship in Botany: R. H. Compton, B.A., Caius.

St. John's.—Naden Divinity Studentship: G. B. Redman, B.A., Jesus.

Darlington Grammar School.—Entrance Scholarships: Belasses, Harold R. Easby, Bondgate Wesleyan School; Chapman Ward, Joseph W. Booth, Central School; Thomas Richardson, (1) Ernest Skipsey, Bondgate Wesleyan School, (2) R. H. C. Bolton, Central School; George Stephenson, Stephen I. Reid, Albert Road School. School Scholarships: Queen Elizabeth—under 16, James Shirlaw; under 15, J. W. Vasey (L. B. Christian and J. A. Thomson having gained County Council Scholarships); under 14, T. W. L. Bowser; under 13, S. C. Walker (F. C. Hewitt having gained a County Council Scholarship). Sir David Dale Exhibition, £50 a year for three years: J. W. Applegarth.

London: City of London College.—City Parochial Foundation Scholarship, £25 a year for four years: William Piercy.

London University.—Scholarships—Classics: Granville Scholarship, Doris S. Easton, Westfield College. German: H. N. Fryer, University College. English: Elsie Chick, University College. Mathematics: J. C. Carr (Sherbrooke Scholarship), East London College; G. B. Jeffery, University College; O. R. Baldwin, East London College. Physics: Neil Arnott Scholarship, B. E. C. Robinson, King's College. Botany: Winifred M. Parker, East London College. Elementary Psychology and Logic: V. Taylor, Weslyan College, Richmond; E. J. G. Bradford, King's College. Economics and Political Science: W. H. L. Jones (Gerstenberg Scholarship), London School of Economics; Mabel C. Buer, University College and London School of Economics; G. Fanstone, Birkbeck College and London School of Economics. English History: G. Davis (Derby Scholarship), University College; F. J. Skinner, University Colldge, Reading; J. D. Whyte, Dulwich College and University College; J. F. Nichols, King's College. Gilchrist Scholarship for Women: Arts, Elsie Chick (English), University College.—Entrance Exhibitions: L. L. Benké, Dulwich College and University College; J. Brimelow, Borden Grammar School and East London College; A. E.

Cohen, Tottenham Grammar School and East London College; J. W. Jones, East London College; A. S. Wood, East Ham Technical College and East London College. *Proxime accessit:* A. R. Hart, Christ's Hospital.—Gladstone Memorial Prize: W. J. Mason.—Ouseley Memorial and Gilchrist Scholarships in Oriental Languages, of the value of £50 for one year, have been awarded as follows:—Ouseley Memorial Scholarships: Sigmar Hillelson (University College) for Arabic; Hafiz Mahammed Mahmud Shairani Khan (private study) for Persian, *proxime accessit* Claude Herbert Field (University College); James Joseph Whittlesea Allsop (University College) for Urdu.—Gilchrist Scholarships: Benzion Halper (Jews' College) for Arabic, and Hangkam Kwingtong Woo (private study) for Chinese.

Manchester Girls' High Schools.—Hulme Trust Foundation: Primrose M'Nicol, Jessie S. Davis, F. Audrey Lodge, and Fortunee de Picciotto: two Exhibitions of £40 per annum for three years, divided; E. Irene Hunt, a grant of £15 per annum.—Lady Whitworth Exhibition: Dorothy Dymond, £26 for three years.—Mary Bradford Exhibition: Dorothea A. Hoffert, £25 for three years.—Senior Scholarships: VI Form (Manchester), Dorothy Fox; V Upper Form (Manchester), Margaret Hogg; V Lower Form (Pendleton), Elsie Tyldesley.—Junior Scholarships: Hilda Pratt, Manchester High School; Mollie Flynn, Manchester High School; Desirée M. M. Edwards Rees, Pendleton High School: Georgiana May Duthie, Manchester High School; Edith C. Newell, Oriel Bank School, Stockport; Dorothy C. Bunn, Fielden Demonstration School.—Old Girls' Scholarship: Dorothy H. Holmes.

Oxford University.—Liddon Studentships: G. F. Fisher, Scholar of Exeter, and H. B. Gooding, Scholar of Hertford, and a grant from the same fund has been made to R. G. D. Laffan, Scholar of Balliol.

Brasenose. — Official Fellowship: Druce R. Brandt, Exhibitioner of Balliol.

Reading: University College. — Major Open Scholarships, £50 a year: Arts, Albert E. Brunning, Steyning School: Science, Samuel W. Horne, Watford Grammar School. Wantage Scholarship, £50 a year (Science): William G. Bickley, County School, Wolverton. Minor Open Scholarship, £20 a year (Arts): Nora K. Purfield, Grammar School for Girls, Rochester. Open Scholarships in Music: Alice L. Bailey (for Singing) and Minnie H. A. Pitney (for Organ and Composition).

Rochester: King's School.—King's Scholarships: E. S. Aplin and L. G. Boby. Exhibitions: L. E. Northcott, R. L. Watt, and H. P. Frend.

Taunton School.—Entrance Scholarships: £25, W. J. Judge; £20, R. C. Candy. Exhibitions, £10 each: G. S. Bridgman, J. R. Sarson, W. H. Scourfield, and R. H. E. Thomas. Ministerial Scholarship of £15: E. M. Harries. Ministerial Exhibition of £5: B. M. Hicks.

THE BRITISH ASSOCIATION.

THE PRESIDENT-ELECT.

The Rev. Thomas George Bonney, President-Elect of the British Association, is reputed (says the *Daily News*) to have more letters after his name than any other man in Cambridge. An Honorary Canon of Manchester, Prof. Bonney, who is in his seventy-seventh year, has filled a number of distinguished posts. He has been Whitehall Preacher, Hulsean Lecturer, Boyle Lecturer, Rede Lecturer, President of the Geological Society, Vice-President of the Royal Society, and President of the Alpine Club. His writings include, in addition to many works of a scientific character, four volumes of sermons. It is somewhat rare for a clergyman to be at the same time a distinguished man of science; still rarer for him to be President of the British Association.

At a dinner given in April last to Dr. Bonney by the Dean and Canons of Manchester, Bishop Welldon said he thought Dr. Bonney was the tenth clergyman who had presided at the annual meeting of the British Association, and that the last time was 1862. "In fact, the period of a clerical president almost approximated to the period of Halley's comet."

Dr. Bonney is taking as the subject of his Presidential Address "A Theory of the Work of Glaciers in Geological Time." "It may be," he says, "the address will disappoint my friends. I know it will evoke criticism, because I am taking a subject of which I have made a special study and which is not entirely popular." Dr. Bonney thinks that the compliment paid him by the British Association is an acknowledgment that there are needed in the Church of England men other than those who devote themselves exclusively to parochial work.

As usual, the heavy programme of the Association will be relieved by no little recreation. There are to be numerous garden parties and excursions, arranged with a view to scientific interest. Sheffield and its neighbourhood are of extreme fascination to the geologist and the botanist, as well as to the engineer.

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CURRENT EVENTS.

Fixtures.

On September 29 Prof. J. W. Adamson will deliver, at the College of Preceptors, the first of a course of twelve lectures to teachers on "Recent Studies in the Art of Teaching."

Honours.

The University of Durham has conferred the honorary degree of D.C.L. upon the Hon. Sir William (Mr. Justice) Grantham.

Endowments and Benefactions.

Miss Belle Honan, a liberal benefactress in the South of Ireland, has promised £10,000 for foundation scholarships in University College, Cork, to assist deserving students in Munster.

* * *

The Mercers' Company has made a donation of 30 guineas to the South-Eastern Agricultural College for the purchase of books of reference for the library.

* * *

Blundell's School, Tiverton, has received a gift of £1,000 from an Old Boy at present anonymous.

* * *

The Montefiore Electrotechnic Institute of Liége has instituted a George Montefiore Levi Prize (20,000 fr. = £800), to be awarded every three years for the best original work on the scientific advance and the progress of technical applications of electricity in every field. First award in 1911. Works to be submitted by March 31. Particulars from the Secretary, Association des Ingénieurs Electriciens sortis de l'Institut Electrotechnique Montefiore, rue Saint-Giles 31, Liége.

Scholarships.

In return for the grant of £8,000 made last year to the Imperial College of Science and Technology, South Kensington, the London County Council secures the privilege of nominating twenty-five students for one year's free instruction at the College. Only advanced students qualified to enter on the fourth year of the course should apply. There is no restriction as to income, but candidates must be resident in London, and must be students at an institution aided, maintained, or approved by the Council. There is no examination, and the studentships will be awarded on consideration of the past records of the candidates. In special cases the studentships may be extended to two or more years. Entries for the studentships will be received until October 1, and application forms (T.2/268) can be obtained from the Education Officer, London County Council, Victoria Embankment, London, W.C.

* * *

London University offers two Martin White Scholarships in Sociology, each £35 a year for two years. Apply to the Academic Registrar by September 24.

Also a Mitchell Studentship, £100, "to a graduate or undergraduate of the University possessing the necessary City qualifications in order to study and investigate some definite feature of Business or Industrial Organization at home or abroad." Apply to the Academic Registrar by September 14.

* * *

QUEEN'S UNIVERSITY, Belfast, offers a Purser Studentship, about £108, for research and lecturing (twelve lectures) in advanced mathematics. Apply to the Secretary by October 7.

* * *

MARLBOROUGH COLLEGE offers fifteen Foundation Scholarships of £50 a year each. Examination, December 7–8. Candidates must be sons of clergymen, and under fourteen on December 1.

* * *

MERCHANT TAYLORS SCHOOL (Charterhouse Square, E.C.) will hold an Entrance Scholarship Examination for boys under fourteen (on December 11) on December 6–8. Particulars from the Secretary.

* * *

OUNDLE SCHOOL offers three or more Entrance Scholarships in December. Particulars from the Head Master.

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WELLINGTON COLLEGE offers seven open scholarships, Classical and Modern, £80 to £50, in November. Also, in conjunction with a Modern Scholarship, a Hughes Scholarship, of not less than £15. Particulars (before November 14) from the Bursar.

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KING'S SCHOOL, Worcester, offers ten Foundation and House Scholarships on November 15–16. Candidates to be under fifteen. Particulars from the Rev. Canon W. Haighton Chappel, School House, Worcester.

Appointments and Vacancies.

IN Manchester University Mr. Maurice A. Canney, M.A. Lond., has been appointed Assistant Lecturer in Semitic Languages; Miss Caroline Herford, Lecturer and Demonstrator in Education and Tutor of secondary students; Miss C. M. Brown, M.A., Lecturer and Demonstrator in Education and Tutor of elementary students in the Training Department; Mr. W. H. Wood, B.Sc., Junior Demonstrator in Physiology; Mr. W. A. Sneath, M.B., Ch.B., Junior Demonstrator in Anatomy; and Mr. E. W. Shann, B.Sc., Junior Demonstrator and Assistant Lecturer in Zoology. Miss Barbara Foxley has resigned her post as Lecturer in Education and Mistress of Method.

Mr. Canney has studied Semitic languages at Oxford, London, and Berlin, translated from Syriac, and contributed to the "Encyclopædia Biblica" and the "Encyclopædia Britannica."

Miss Herford studied at Newnham, was for many years Head Mistress of the Ladybarn House School, and has recently been Lecturer in Education at University College, Reading.

Miss Brown is a graduate of St. Andrews, and holds the Cambridge Teachers' Certificate. She has had experience in the Great Crosby High School for Girls and as Head Mistress of the P.-T. Centre, Stoke.

* * *

THE REV. GEORGE MILLIGAN, D.D., minister of Caputh parish, Perthshire, has been appointed Regius Professor of Divinity and Biblical Criticism in the University of Glasgow.

Dr. Milligan is the eldest son of the late Dr. William Milligan, long Professor of Biblical Criticism in the University of Aberdeen. He has made some important contributions to theological literature, including work on Greek papyri.

THE Professorship of Greek in Durham University is vacant through the death of Canon Kynaston.

* * *

A PROFESSOR of English and History is required at Magee College, Londonderry. Must be Graduate in Honours of some University of the United Kingdom. Apply to the Secretary of Faculty by September 10.

* * *

THE REV. JOHN DALL, B.D. St. Andrews, minister of Rothesay, has been appointed Professor of Church History in Kingston University, Ontario.

* * *

IN Bedford College for Women (University of London) Miss Ethel M. Heaton, B.Sc. London, Stockwell Training College (since 1906), has been appointed Assistant Lecturer in the Training Department; and Miss Marion Pick, M.A., University College, London, Assistant in Mathematics.

* * *

MR. A. E. ZIMMERN, M.A., New College, Oxford, has been appointed Lecturer in Sociology at the London School of Economics and Political Science.

* * *

MR. JOHN BENNETT BLACK, M.A. Glas., B.A. Oxon., has been appointed Lecturer in English History and Assistant to the Professor of History in Glasgow University.

* * *

MISS M. H. GIBSON, M.A., Ph.D., and Miss G. A. Lewis, M.A., have been appointed Assistant Lecturers in the Training Department, Cardiff University College.

* * *

DR. J. P. HENRY has been appointed Lecturer in Modern Irish Language in University College, Galway—subject to the statute instituting the lectureship not being disallowed.

* * *

MR. J. H. HALLAM, M.A. Cantab., M.Sc. Vict., has been appointed Inspector-in-Charge of Higher Education (Secondary Branch) under the Education Committee of the West Riding County Council.

* * *

THE REV. R. A. THOMAS, M.A., Vice-Principal of Winchester Training College, has been appointed Principal and Chaplain of Chester Training College, in succession to the Rev. J. D. Best, preferred to the living of Sandon, Chelmsford.

Mr. Thomas was educated at the King's School, Chester, and Trinity Hall, Cambridge, where he was a scholar, graduating (Senior Optime) in 1895. In 1896 he obtained a Third Class in the Natural Science Tripos, and in the following year was *proxime accessit* for the Maitland University Prize. From 1896 to 1898 he was a lecturer at Chester College, and from 1898 to 1905 Vice-Principal. Since 1905 he has been Vice-Principal of Winchester College.

* * *

MR. EDWARD ARMSTRONG, M.A., Fellow and Bursar of Queen's College, Oxford, has been appointed Warden (non-resident) of Bradfield College—the Wardenship being now separated from the Head Mastership.

Mr. Armstrong was educated at Bradfield and at Exeter College, Oxford. He is a Fellow of the British Academy, and has written much and well on foreign history.

* * *

THE Essex Education Committee require a Principal of their County Laboratories, Chelmsford. £500. Apply to Mr. J. H. Nicolas, Secretary, County Offices, Chelmsford.

* * *

MR. P. M. HAMPSHIRE, A.R.C.S. Lond., A.I.E.E., assistant in the Physics and Engineering Department, Municipal Technical School, Blackburn, has been appointed Lecturer

and Practical Instructor in Engineering at the Municipal Institute, Walsall.

* * *

Mr. Alexander R. Horne, B.Sc., A.M.I.M.E., Heriot-Watt College, Edinburgh, has been appointed Head of the Engineering Department in Robert Gordon's Technical College, Aberdeen.

* * *

A Lecturer in Economics is required at the Technical College, Huddersfield. £150. Apply to the Secretary.

* * *

Miss Sophie G. L. Adams, B.Sc. Lond., Second Mistress, L.C.C. Secondary School, Fulham, has been appointed Head Mistress of the Cheshire County Council High School for Girls, Macclesfield.

* * *

Miss Ruth Freer, English Mistress at The Laurels, Rugby, has been appointed Tutor at Cherwell Hall, Oxford.

Miss Freer was a scholar of Lady Margaret Hall 1903, and took the Scholarship in Modern History 1906.

* * *

Miss Alice Coote, teacher in the Manchester Municipal School of Commerce, has been appointed Mistress for Commercial Subjects in the City of Bristol School of Commerce (day classes).

Miss Coote has had fourteen years' experience of business life in the office of an important Manchester firm.

* * *

The Head Mastership of the Roan School for Boys, Greenwich, is vacant. £500, rising to £600. Age, 30 to 45. Honours degree. Not more than three recent testimonials (25 copies). Apply to the Secretary by September 17.

Literary Items.

The Syndics of the Cambridge University Press have decided to publish two volumes supplementary to their great "History of English Literature," consisting of extracts in prose and verse illustrative of the text, together with about a hundred reproductions of title pages, portraits, facsimiles, and other illustrations.

* * *

Messrs. Rivingtons will issue presently a third edition of "The History of Tonbridge School," by S. Rivington, revised and enlarged. Also "A First French Course," by Mr. A. R. Florian, of Manchester Grammar School; and "A French Composition Book," by Mr. F. Victor Massard, of Hamilton Academy.

* * *

Messrs. J. M. Dent & Sons announce an issue of fifty new volumes of the excellent series of "Everyman's Library" early in September. Among these will be Huxley's "Lay Sermons" and select lectures, and Lord Dufferin's "Letters from High Latitudes," the latter a seasonable volume of northern sea-travel.

* * *

The Board of Education has issued as a pamphlet a translation of the syllabus of instruction in Mathematics that forms part of the new courses of study in the Austrian *Gymnasien*, the reforms suggested therein being similar to those under discussion in this country.

* * *

The September number of *School Hygiene* is a special Congress number, containing a full descriptive account of the Third International Congress on School Hygiene, held in Paris from August 2 to 7. It gives in full the inaugural speech of the President, Dr. Mathieu; the address by Dr. Kerr, Chief School Medical Officer to the London County Council, on "The Doctor's Work in the Schools"; and the paper by Dr. Chotzen, of Breslau, on "Instruction on Sex"; together with descriptive accounts of the proceedings in the eleven sections, &c. This claims to be the only complete account of the Congress in this country.

General.

The Chairman of the Education Committee of the County Councils Association, in a letter to the press, suggests to the Board of Education that they should hold an inquiry into the whole question of the supply and training of teachers.

* * *

"Neither pure collectivism nor pure individualism," writes Prof. Sadler (in *Indian Education*), "will ever fit English needs. But the new individualism will spring from a clearer conception of corporate responsibility, and the imparting of this sense of corporate responsibility will be one of the chief tasks of English schools under the new conditions of their work.

* * *

A School of Naval Architecture has been established in the University of Liverpool.

ECONOMICS IN THE CURRICULUM.

I.—AN ENGLISH VIEW.

[From the *Morning Post*.]

A schoolmaster was recently asked by an anxious politician what sort of political economy was taught at his school. He was able to answer without any embarrassment that it was not taught at all. What is the reason of this strange neglect? If there is any truth in the prevailing idea that education is a preparation for the duties of citizenship, then the young should be introduced to those problems which as citizens they must one day take their part in solving. If it is desirable that every man should have some acquaintance with the laws of the physical universe in which he moves, then surely it is no less essential that he should not be wholly ignorant of those which determine man's method of making a living. If it is part of his training to learn how to exercise a vote with judgment, it is difficult to see how, in an age when political questions are so highly economic in character, he can dispense with the study of political economy.

There are three possible ways of explaining the omission: (1) It may have been crowded out of the curriculum, or (2) there are not enough qualified teachers of the subject, or (3) it is not a suitable subject for school use. The first and second of these excuses will not bear a minute's examination. This is an age of modern sides. The ancient languages no longer reign supreme, and the problem is rather how to find suitable substitutes to take the place which they formerly filled so exclusively in a liberal education. Moreover, even the classical scholarship tests at Oxford and Cambridge always include an essay and a general paper, and few are the subjects of "general knowledge" which do not admit of treatment from the economic point of view. As to the possible deficiency of duly qualified teachers—require the subject, and the men will soon qualify themselves. It is now the practice at some schools to engage one or more masters for the special purpose of teaching history to the higher forms. In most history courses at the Universities it is possible, if not obligatory, to take political economy as a twin subject, and these specialists would be the natural channels for the introduction of definite and systematic instruction in the principles of economics.

There remains the allegation that it is not a suitable subject for school use, but belongs properly to a later stage of education. This is, in fact, the objection which is most frequently made. Now, all boys do not proceed to a University course from the public schools; probably the proportion of those who do is

dwindling. If, then, it is of the first importance that they should not go out into life without having thought upon these matters and had some introduction to their systematic study, it would seem desirable that the University course should in this particular be sometimes anticipated. But it is doubtful if this contention is more than a bad excuse. It is asserted that political economy is a "shifting" science, and therefore ill adapted for that grinding of instruction by routine which is the traditional conception of education. It is true that the science is of a "shifting" nature, if by "shifting" is meant progressive. But what science has attained to such finality as to admit no criticism of its method or modification of its latest conclusions? Not even the mathematics can lay claim to such immutability. . . . Classical teaching may certainly lay claim to a greater finality, which indeed has been largely the cause of its undoing. . . . Modern educationists insist rightly that the true attitude of a teacher is that of a fellow pioneer. He cannot maintain this attitude if his own pioneering is never more than a pretence. In these respects the study of political economy can well bear comparison with the older "subjects." It has survived the assault of the Ruskinian School on its claim to be a science, having laid its foundations securely on the rock of fact and figure. At the same time, there is no fear of its devotees stagnating through lack of further regions to explore; nor will it be a valid objection to the cult of this new science in schools that its high priests have open minds and sometimes alter their opinions. . . .

But when we have asserted this claim on behalf of a "shifting" science, we may, nevertheless, admit that it is desirable in schools to confine our attention to those portions of the subject which are less liable to earthquakes and revolutions. There is quite a large field of learning which, though not likely to be described in identical terms by all authorities, is still, in the main, outside acute controversy. Behind the structure of theory there is always, in the first place, a considerable area of geographical and historical fact. All boys touch upon it in their study of history and geography. They are acquainted with the main products and exports of different countries and of some of the causes which determine them. They can hardly be unaware of the economic results of the Black Death and the Napoleonic Wars and some of the issues of the industrial revolution. They have heard of the beginnings of the Bank of England, and, perhaps, even know something of the Repeal of the Corn Laws. The natural avenue to economic theory is the extension and systematization of this area of knowledge. And the best way to make it systematic is to outline the world's history into its great epochs of industrial evolution, using for illustrations all that is most familiar, such as the history of the patriarchs or the agrarian troubles of Rome. But analysis can usefully be introduced at quite an early stage. Though economists vary a good deal in their definitions of capital, the examination of things of common experience, with a view to determining whether or under what circumstances they are to be classed as capital, is sure to stimulate thought and give an exercise in clearness of statement, though we may not arrive at certainty in the final result. At a later stage, too, it will be useful to investigate some familiar instances of bargaining and use the school shop as material for the construction of tables of marginal utility or a study in the effect of monopoly. It is strange that many economic concepts are of so simple a nature and such universal application, and yet, unless we are men of business or become students of the science, we so rarely apply them in a systematic way. We are perfectly acquainted with the ordinary functions of supply and demand, and yet may never think of making the plainest generalizations as to the result of their interaction. Again, no one who really thinks out the matter would refuse to admit that exports are paid for by imports; but, still, it is not a thing which readily enters the youthful imagination. In our ordinary transactions we are accustomed to buying with pounds, shillings, and pence. We do not, as a rule, barter (though schoolboys do, which is all to the good for our purpose), and it takes a step or two into economic theory to understand why international purchases are not normally made with gold. In fact, it might be said that the preliminary step, and the one which it is especially the function of school teaching to encourage and direct, is the development of an economic imagination, to learn not only to think in percentages and *per capita* calculations and margins and currencies, but to see goods exchanging for goods, and the marginal customer in flesh and blood hesitating before the counter. How far it is desirable for boys or girls to advance in theory within the school period it is for more expert economists to determine. Naturally, it must vary somewhat with the type of school, and even with the individual boys. The method of the school will naturally be to concern itself primarily with fact, but in such a way as continually to give glimpses of the points that are at issue among the theorists, and, of course, to encourage at all stages the mind which is anxious to get at the inwardness of some knotty point. The stress of political controversy necessarily requires a little delicacy in the handling of some points; but nothing can be more salutary than to get boys to realize that unearned increment or hostile tariffs are really things which admit of dispassionate and scientific investigation. Needless to say that many schools already do invaluable work in these ways. Unfortunately, it is still necessary to emphasize the need for all of them to give due attention to the claims of economics as a regular item in the curriculum.

II.—AN AMERICAN VIEW.

By Harry Preble Swett, Franklin, New Hampshire.

[From *Education* (Boston).]

It is the purpose of this paper to give some broad reasons to show that the study of economic principles should be pursued in all our secondary schools, and that in those schools where the subject is offered it should be open to all pupils without reference to what curriculum they may otherwise select. The introduction of economics, as a subject of general study, is a problem entirely distinct from questions relating to the establishment of trade schools, or to the introduction of technical courses, or of machinery for manual work. The latter topics have been more prominent in current discussions; but they should not entirely overshadow the former. They both can be discussed separately on their own merits.

It is a fundamental principle of education that the importance of any subject of instruction is properly determined by the conditions of our civilization. In this connexion it is not difficult to establish the position that our present industrial conditions are of significance to all citizens, and that the way in which important industrial questions are solved will have a definite effect upon our future history.

One has but to review the trend of politics to substantiate the fact that our political questions are now largely economic, and that they will remain so for many years to come. They are not minor economic questions either. Some of them involve a radical change in our civilization. The socialist party is significant of the conditions. Remedies, as radical as those offered by the socialists, must be considered; and accepted or rejected. The tariff, new methods of taxation, the supervision of large corporations, the trusts, prices, private fortunes, wages, labour and capital, governmental extravagance, the conditions of the cities, child labour, currency reform, home economics—such questions are pressing forward, will demand consideration, and are as difficult, many of them, as they are common.

Every citizen is affected. Some may not realize it; some may not wish to concern themselves with the problems; some may have a selfish interest to make conditions favourable to individuals or classes; some may be greatly interested, but work blindly, or narrowly, for results.

Educators cannot rest until they strive to make topics of universal concern of universal interest. They cannot allow selfishness to grow if they can help it. They are bound to remove error and narrowness wherever there is danger of serious consequences. As to producing a general interest in economic questions, we cannot hope that a broad general education will suffice. These are definite problems, requiring definite study of the conditions, or special experience—like that of a father out of work, for instance. If a person with a good general education happens not to be troubled by external industrial conditions, he may not have more than a passing interest in these themes that are of great moment to so many of his fellow men. We cannot wisely run the risk of having many with a broad intellectual training leave the solution of such problems to those who have only a limited, though it may be powerful, experience to guide them. If our educational system is in harmony with these conditions, the attempt must be made to arouse this interest before school days are passed.

But a general interest is not the only goal to be sought in teaching economics. If interest were all, it might be secured in some other way than by making a definite study of the problems. Indefinite interest may result in fruitless thinking. A brief introduction to economics will reveal certain elementary principles,

which will not easily be learned otherwise, and which will be serviceable in later thinking. Besides this, it will give some insight into what scientific thought here means, and will cause one to be more alert, if undigested ideas should be heard, or read, later.

Economics as a science, moreover, has technical terms which cannot be understood without a preliminary study of their meaning. Further progress in self-education, after leaving school, will be much more certain if these fundamental terms are mastered. Our newspapers and other publications are using these terms with increasing frequency. Only those persons that are familiar with them will read such articles with ease, and enlarge their own thinking thereby.

The study of economics ought to start one in thinking, in an enlightened manner, concerning one's own work. Perhaps the highest good can come from this result eventually. The lowest type of toil has its meaning, and the highest may be followed without its meaning being realized. This larger outlook can best come as the result of a scientific imagination, which can see relations in industrial society. This will lead to finding the place where one's abilities may be well employed and where one's desires may be better satisfied. This may lead also, we may hope, to more ethical considerations, whereby the need will be seen of fitting in one's own desires with those of others, and a willingness will be developed to sacrifice one's desires for the good of other members of society. This is the spirit of the labour unions, when they are conducted wisely. There is no reason why the schools should not build upon the same spirit. It is, certainly, a proper goal of a part of our teaching to develop a people, generally industrious, but not in slavery to labour, who are working in order that they may live well, and let others live well also. We need this foundation for our democratic civilization.

Such considerations have reference to girls as well as boys. All women have economic desires and activities. The woman in the home has a large part to play in the progress of industrial society. Her interests are often found to be more varied than her husband's, who earns his wages in a particular line of work, while she spends the money in innumerable ways. In any case, she has much to say with regard to the spending of it. Her life, as well as that of the woman who labours in a more definite occupation, is, to a large extent, economic.

In our politico-economic development we shall need leaders, both in action and thought. The value of their leadership will depend much upon the intelligence, economically, of those whom they lead. Good leadership is the product of time and circumstance. Our writers and statesmen will be of the sort that public opinion makes them. If they appeal to an intelligent, responsive public, there will be an inspiration to cause them to express themselves wisely. Otherwise selfish and insufficient, if not disastrous, measures will result.

In this economic training, the strategic position is held by the secondary schools. The colleges are already doing their part well; excellent courses are offered, and these are very generally elected by the students. . . . The secondary school has not yet begun to make use of its opportunity.

Again, economics may be made a study that is well suited to the grade of the secondary school. Such a study, of the best type, gives an introduction to principles which are of wide scope and which are based upon data suited to the age and experience of the pupil. Economics satisfies these requirements exceptionally well. The student of this age has a broad fund of economic experience that may be easily drawn from if the data are sought there, and the facts may be shown to lead to wide generalizations which are not too subtle to be sufficiently understood.

Other conditions are favourable to a more extensive teaching of the subject. There are some good texts. The introduction of the study to a very large percentage of the pupils will cost no more than an ordinary secondary-school course. No new administrative plans are needed. Teachers with a college training can readily be secured.

Economic questions are destined to be as serious as were the political questions that were under discussion at the time our form of government was established. They may become more serious—how serious they might become one may imagine from the progress of Roman history from the time of the Gracchi. The secondary school must realize the significance of the situation for our civilization. These problems can be solved well only by prolonged and definite thinking by many citizens of the particular problems with reference to the general welfare.

HIGHER EDUCATION OF WORKERS.

ARCHBISHOP OF YORK ON EDUCATION.

The Local Lectures Summer Meeting of the University of Cambridge was held at York from July 21 to August 17. The attendance included many visitors from nearly every country in Europe, especially from Germany and France. At the opening meeting the Lord Mayor presided. The visitors were welcomed by the Lord Mayor, the Dean of York, and the President of the Yorkshire Philosophical Society. The Archbishop of York delivered the inaugural address (which we adapt from the full and careful report of the *Yorkshire Herald*).

The Archbishop (Dr. Gordon Lang) said the visitors had received almost a surfeit of welcome; but he would dare to add his to those they had already received. He represented an office which was more venerable than any of those which had been represented to them. His office took him back to a time when there was no historical record even of the Lord Mayor of York, one of the most venerable officials in the country—it was an office with which the Dean himself could not vie in antiquity. As far as the Philosophical Society was concerned, he thought the Archbishop of York in the seventh century might have been described as the President of the only Philosophical Society which in those days existed. It was into a very fitting scene that they had brought this month their desire for education. The City of York, he thought, might be described as a centre of University Extension long before either Oxford or Cambridge was ever dreamed of.

Alcuin—the Majestic Scholar.

In the eighth century the lamp of letters was burning more brightly in York than in any other part of our country—he thought one might even say in any part of Europe. The Minster, with its Cloister School attached to it, was a centre of learning famous throughout the whole of Europe. He regarded his predecessors Archbishops Egbert and Ethelbert as pioneers in the cause of the extension of education. But the great master of letters, whom he would bid them have reverently in their minds during the whole of their visit, was, he need scarcely say, the great majestic scholar Alcuin, who was born in York. He thought they might say that the meeting between Alcuin of York and Charlemagne in 781 was one of the great moments in the history of European education. The great Emperor, ever illustrious because of the width and greatness of his ideals, saw in the master of the scholars of York the very man to whom he could look for guidance and help in the extension of education throughout his great dominions, and, through Alcuin, York became the mother of many seminaries and Universities of learning throughout the whole of Europe. His Grace considered, therefore, that the comparatively young University of Cambridge was there this month to pay fit honour to its more venerable sister York, who had discharged and exercised the powers of University education before the University of Cambridge even existed.

The New Universities.

He was tempted to ask what good had the University Extension movement been able to do during the thirty-five years of its existence. They might perhaps see some direct results of their efforts. Direct results, of course, were difficult to discern, but he thought the cause of University education might surely claim at least these two direct results. The first was that the spirit and ideals with which it had always been animated had had a real share in the movement which was one of the most remarkable of our generation—the movement which had led, within the last twenty years, to the founding, he thought he was right in saying, of at least nine or ten new Universities in England. He knew they could only claim a share—he should always give a larger share in this great result to the spirit of civic pride, to the sense that had at last dawned upon the minds of citizens of this country of the need of knowledge for the maintenance of its position among the nations of the earth, and of the sense, wrought in upon us by our development of primary and secondary education, that we must complete the ladder by a satisfactory system of University education at the top.

The Position of Working Men.

In the second place, he had no doubt at all that the University Extension movement had had a great influence in creating among

our working classes a sense of their need of some University education. In the old days of the movement they attached special and particular importance to the lectures that were delivered to working men. Certainly twenty years ago, both in Lancashire and Yorkshire, it was his privilege to give lectures to working men as keen, alert, as enthusiastic as any audience that a lecturer could ever wish. He fancied now that the presence of working men at the lectures was not so numerous as it used to be, but the reason was because they had now felt that they must themselves organize their own University education, and one of the most fruitful and promising of all the products of the University Extension movement was the Workers' Educational Association, which was already exerting a large influence —certainly in his own University of Oxford—and which was at the present time making a beginning in giving University standards of knowledge to large tutorial classes of working men in many industrial centres. He should like, in their name, to wish every prosperity to that most hopeful and fruitful movement for giving those to whom an increasingly large share of the control of the destinies of our country would be entrusted a real and clear knowledge of the history and social economics of their country.

The True Ideal of Education.

But he would rather think with them of the more indirect benefits which University Extension had been able to diffuse. He would mention first that it had maintained a witness to a true ideal of education. Bishop Creighton used to say—and he often quoted his words, because he thought there was a great deal of truth in them—"that the object of education was not only to fit people to get on, but to fit people to use the times in which they were not engaged in getting on." In a country such as ours it was almost inevitable that education should be largely utilitarian in its character, and directed to the development and improvement of the means of life and the means of wealth. We were, and we boasted ourselves to be, a practical people, and we were very largely under the domination of practical ideals. So far as the pressure of practical ideals had led to increase and development of education, we must be thankful.

The Maintenance of Industrial Prosperity.

They all remembered the answer which a great painter gave to the question, "How do you mix your colours?" The answer was "With brains, sir." And, if we were to find an answer to the question how in these days were we to maintain what was so important to an enormous population—namely, our commercial and industrial prosperity—the real answer was not so much Free Trade or Tariff Reform as brains. If the pressure of these economic needs developed in our minds a sense, a much more widespread sense, of the value of knowledge, even in regard to the industrial and commercial welfare of people, we had every reason to be thankful, and he would most cordially acknowledge the benefit which increased secondary education had given to our workers in increasing their own intellectual interest in the daily task which was appointed to them. At the same time, our whole conception of education would be defective unless we remembered that there was another craft, in which we all had to learn to be worthy craftsmen, the most primary, the most fundamental craft of all, the craft of life, that which was ideal, and to use zeal to fulfil a worthy life. We all must be craftsmen in that great enterprise.

Encouragement of Local Patriotism.

There were large classes of persons for whom education at the Universities was impossible, but yet the effect of the lower grades of education, as we had these in this country, had been undoubtedly an increased sense of wants. That was right and true, and they valued it, because it was only through a progressive sense of wants that the standard of life in any community could rise, but the wants that were set moving, especially by secondary education, could not of themselves be satisfied by the education which our schools themselves produced. They aroused intellectual interest, and once aroused that interest was insatiable, but unless it was directed into good channels it became mere restiveness. It had to be disciplined, trained, and directed towards the true source of satisfaction. He thought it was difficult to exaggerate the way in which the University Extension movement had enlarged the horizon of the interests of the people. It had introduced the humblest to the society of the greatest, and enabled the humblest to enjoy the society of the greatest, not as if the latter had been met personally in a few distracted moments, but as they were at their best, giving themselves wholly to those who were waiting upon them. In conclusion, his Grace expressed gratification that among the matters to be discussed at that summer meeting were local subjects. Every town or village throughout the length and breadth of the land was full of great spirits and memories of the past, and, if this explanation of the local literature, history, and life enlarged the interests of local life, so surely it must deepen its dignity. There was great need in these days of developing and stimulating the sense of local patriotism. There was a local patriotism which was unworthy, and they had too much of it—the patriotism which busied itself with the politics of the village pump. But there was a noble patriotism of which they could not have too much, the patriotism which made men feel that the stage through which they were passing in the town or village in which they lived was one in which, by their efforts, they must be worthy of the stages through which it had already passed.

KNOWLEDGE AND SUCCESS.

A WARNING AGAINST SMATTERERS.

Undoubtedly (says the *Electrical Review*) there are many men who now rise to positions of eminence in the electrical world owing to their taking advantage of this or that scholarship, or to their having been able to gain the necessary theoretical training in combination with their practical work. Such achievements would have been impossible under the old order of things. These are, however, the exceptions. Generally there must be an improvement. Employers have, or should have, a higher class of workman or foreman than formerly, and employers themselves are less subject to the rule-of-thumb in connexion with their various products and the organization of manufacture. All this must be of necessity beneficial, and stimulating to industry.

Unfortunately, however, the possession of the new learning is not the key to success; so that one man may be equal to another intellectually and in actual knowledge, yet not go so far up the ladder. The evils which are present in the electrical world, and which operate to the detriment of the many, are just as much in evidence in other departments of life, and it is idle to gird at them as being peculiar to one sphere only. There is, however, not only one reason for the dissatisfaction which prevails in all ranks. Another, and more baneful one, is the flooding of the market by "smatterers" and amateurs who have taken up the electrical business in one branch or another because of some unaccountable Eldorado notion that great things are to be expected from it. The result following on this surplus supply of aspirants may be seen in the advertisement columns of all our papers, even if the correspondence columns give no clue. The rates of wages in some departments are either barely such as to allow of a living, or there is a standard to be reached in order to obtain a decent wage which is out of all proportion to the return.

This phenomenon of over-supply is not confined to the electrical world—witness the complaints of our elementary-school teachers. A surplus of any commodity is bound to reduce the price of that commodity. In the case of labour, however, it has another effect—namely, that the security of tenure for the worker is endangered. Change is the order of the day with many people, and no man feels safe so long as he knows that five hundred men are outside, so to speak, who will do his job for less money or, at most, for the same. In our power stations, where dividends are the Alpha and the Omega, the rank and file are practically volunteers, in many cases, and attendants who are first, say, fitters and then electricians are actually asked for, and presumably obtained, at wages below those given to ordinary fitters in the mechanical engineering shops.

With regard to remedies, the only one which will operate naturally sooner or later is that the supply will fall off, and then wages will adjust themselves. This should, however, be supplemented by employers themselves, whether private, municipal, or others, in their own interests if for nothing else, by the discouragement of smatterers and by keeping a watchful eye on the money spent in sending students to evening classes in order that the same may not be wasted.

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BRITISH INFLUENCE.

The consideration of the relations between Great Britain and Japan cannot (says the *Times*) be confined solely to political questions. In many other respects the two nations have entered into intimate association. Great Britain has exercised far less influence upon modern Japanese education than Germany and America, but it has nevertheless played a conspicuous part in assisting Japan to gain access to the knowledge of the West. The most notable share in the educational development of Japan which lies to the credit of Great Britain was the establishment of the Engineering College at Tokio in 1872. The institution, which is now merged in the Tokio University, was created by Mr. Henry Dyer, of Glasgow, whose able and thoughtful books on Japan have done much to spread a knowledge of the country among Englishmen. The late Prince Ito wrote that he considered the college "one of the most important factors in the development of Japan." Most Japanese engineers of eminence were trained by Mr. Dyer and his assistants, who were largely Scottish. Among the original professors and demonstrators were W. E. Ayrton, D. H. Marshall, and George Cawley. Later additions included Prof. Milne, now famous for his investigations in seismology, John Perry, and Thomas Alexander, while Captain Brinkley was for some time Professor of Mathematics. The College of Engineering not only helped largely in the rise of modern Japan, but several of its staff attained distinction by their attainments and researches. The names of Dr. Divers and Mr. R. W. Atkinson, both distinguished for their researches in chemistry, are also gratefully remembered in Japan for the encouragement they gave to earnest scientific study. Though the Japanese eventually turned to Germany for medical instruction, the pioneer work in medicine after the Revolution was done by an English doctor, William Willis. The foundations of agricultural education in Japan were laid by Englishmen, and the staff of the Naval College was originally English.

The indirect effect of English thought upon Japan has been enormous. Though Japanese scholars have been chiefly attracted for many years past by German philosophy, the influence wielded upon the majority of thinking men by Darwin and Spencer has been infinitely greater. It is said that the Liberal Party, when it was founded, "adopted, to a great extent, the opinions of Spencer as their political platform." In the seventies, we are told, "Spencer was supreme." The choice of English as the principal foreign language taught in the schools helped very greatly to encourage the study of English literature. At present, English is taught only in a few primary schools, but it finds a foremost place in the curricula of secondary and higher education. The fact that instruction in English is no longer imparted by Englishmen, except in a few cases, has caused the quality of the teaching to deteriorate. The Japanese as a race do not acquire English with the facility noticeable among Indians. The English spoken by untravelled Japanese is usually very indifferent, but is redeemed by the eagerness with which even the humblest men often seek to improve their acquaintance with it.

SCHOOL ATHLETICS AND HEALTH.

The British Medical Association, at its recent meeting, made the following pronouncement on athleticism in schools:—

1. A due amount of regular bodily exercise for each individual is one essential element in any complete scheme of education. The fitness or otherwise of a pupil to undertake and to benefit by exercise must always be largely determined by the conditions of his everyday life at school. In this connexion his diet, the times and arrangement of his meals, the nature, conditions, and duration of the mental work demanded of him, and the amount of healthy sleep secured to him are all of vital importance.

2. All the pupils of any school should be under the personal supervision of a single medical authority, whether this consists of the school medical officer or (as may be advisable in very large schools) of a Medical Board specially constituted to that end.

3. Every boy should be subjected to a thorough medical examination by the school medical authority when he first enters the school. This may reveal obvious defects or disabilities in some instances, and in other cases may show the need for special observation during, at any rate, the earlier years of school life.

4. A boy's fitness for physical exertion depends upon his physical and constitutional ability, and is not to be gauged merely by his age, which, taken by itself, is often a misleading criterion of strength and endurance.

5. It is most desirable that a course of systematized physical training should be adopted for all boys in schools.

6. Careful observation of the behaviour of the new and younger boys during their ordinary games, &c., and of the physical effects thus produced upon them individually, affords a valuable means of estimating the fitness of each for subsequently undertaking more strenuous exertion.

7. It is most important that there should be an ample interval (one hour at least) between the end of a substantial meal and the beginning of strenuous exercise. There is clear evidence that the neglect of this elementary rule is responsible for a very large proportion of the evils which have been attributed to over-exertion alone. The nature, quality, and quantity of food and hours of meals require careful consideration and adjustment.

8. Special caution is required in permitting a resumption of active exercise to convalescents, particularly after diphtheria, influenza (including "influenzal catarrhs"), rheumatism, and measles, and during a period of rapid growth.

9. Paper-chases, school and house runs, should be distinguished from races; but so far as they include the element of competition, and, therefore, to some extent, the strain of racing, boys should be elected and grouped for a specified distance in accordance with their physical capacity. The plan of running all boys —the young and the older, the strong and the less vigorous— together, over the same distance, is not to be recommended. Whenever, for any reason, such a plan is adopted, special measures must be taken to ensure that the smaller and weaker boys are not called upon for excessive or too prolonged exertion. Evidence, obtained from a great many schools, upon the results of long-distance races, shows that they very seldom entail risk, provided that the competitors are selected and watched during practice with the care and precautions already indicated.

10. Medical examination and skilled supervision are also needed in regard to rowing, boxing, and swimming. Competitions in long-distance diving and in long-distance swimming are dangerous for young adolescents.

11. The above considerations as to periodical medical examination and careful individual supervision are equally applicable in the case of girls engaging in active exercises.

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(*Continued on page* 372.)

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attempt to extend the dispensing power of the Crown into a right to suspend Parliamentary statutes had been completely defeated. The King's ecclesiastical supremacy had been declared to be subject to law." The Cabal had been checkmated and dispersed. Danby, on coming to power (1674), "desired to abandon altogether the policy which had more or less openly been pursued since the fall of Clarendon"; he wanted to conciliate Parliament and to shake off the menacing predominance of France. But Charles consistently repudiated tutelage: he would submit to Parliament only to raise money, and he had no intention of giving up the French alliance or French subsidies. The question of the succession, with the tortuous and underground religious and political complications, drags through several dreary years. "The conclusion of the verbal treaty between Charles and Louis XIV and the dissolution of the Oxford Parliament (1681) mark a decisive and, to some extent, a final turning-point in the history of the reign." A chapter on "Scotland and the Covenanters" shows that Prof. Lodge has become acclimatized sufficiently to understand and to appreciate Scottish ecclesiastical politics. He finds something to say in favour of the King: he gives him "some credit" for a genuine interest in science, art, the drama, and colonization, and especially in the expansion of England beyond the sea. "Charles preserved to the last his personal popularity, and his death was sincerely mourned by the majority of his subjects": a more severe condemnation could scarcely be passed upon the intelligence, patriotism, and moral tone of a nation.

The treatment of the short reign of James II is well balanced and discriminating, and the "glorious" Revolution of 1688 (1689 new style) lucidly and effectively described, the establishment of the new order being again narrated in separate chapters for England, Scotland, and Ireland. The marked contrast between the Revolution in England and the Revolution in Scotland is distinctively emphasized, and the resulting difficulties in Scotland are pointedly dealt with. The atrocious character of the massacre of Glencoe is weakly slurred over, but it is satisfactory to note that the King is not exculpated. The Darien enterprise was no doubt "imprudent to the verge of insanity," and involved William in intolerable complications, but we should have liked some explanation of the industrial and commercial conditions out of which it grew, and of the influences of English action in producing or fostering them. The prolonged and bitter conflict in Ireland, followed by penal laws and commercial restrictions, makes a painful episode in the transition. For the rest, the years are mainly filled with the struggle by land and sea in which the pretensions of France were beaten down, the partition treaties (the first of which "was the most unconstitutional act of William's reign"), the ins and outs of Whig and Tory, and the recurrences of financial and religious trouble. "In the long line of English rulers William has had no superior in intellectual power, in industry, in width of outlook, and in the choice of fitting means to gain his ends; yet he cannot be reckoned among the greatest of them, for the simple reason that he was not an Englishman." "He had ruled ably, and on the whole wisely, but with an air of patronizing aloofness which courted suspicion, and with a complete absence of that instinctive sympathy which is the only passport to a nation's love." The final chapter is devoted to a brief sketch of the literature and science of the period. The volume is well proportioned, adequately informed, and written in a plain but interesting style; and it is entitled to a high place in the excellent series. There are two very useful maps: North America, showing the growth of English colonies in the later part of the seventeenth century; and the Low Countries, illustrating the campaigns of William III.

In dealing with a comprehensive work like this we are always reluctant to make much of particular details that do not essentially affect the general result. Before parting with this volume, however, we wish to add a brief note on a minor point, partly on principle, but partly by way of curiosity. In June, 1667, a Dutch fleet under de Ruiter (we venture to spell the great admiral's name after his own fashion) entered the Thames, "turned up the Medway, broke the chain which guarded the passage, burned three men-of-war, and bombarded Chatham." We are beyond reach of the English sources at the moment; but we remember (if we mistake not) that Green also says "three men-of-war," and so there is probably some English authority for the figure, for it is not to be supposed that Prof. Lodge is otiose enough to copy Green. Macaulay says, with picturesque sweep, that the Dutch fleet "burned the ships of war which lay at Chatham" — which seems, at least, to suggest more than three. Now it so happens that we have just been reading a selection of passages from Gerard Brandt's memoir of de Ruiter, edited for a popular Dutch series by Prof. Dr. G. Kalff, of the University of Leiden, and there we find an enumeration of *six* ships "burnt" by the Dutch, with a description of the fate of each of them. Is it three, then, or is it six? Evidently Prof. Lodge has not made a reduction under the influences of a false patriotism; for he frankly and justly recognizes the ability and valour of the Dutch—as de Ruiter similarly acknowledged the ability and valour of the English. It is interesting to observe that three of Brandt's six ships "burnt" are English ships in the sense that they were never other than English — the "Royal James," the "Loyal London," and the "Royal Oak"; while the other three are ships that had been captured from the Dutch—the "Carolus Quintus," the "Matthias," and the "Slot van Honingen," and they are not a negligible part of the English force if they carried at the time (as Brandt says) 60, 52, and 17 guns respectively. Is this, then, the explanation of "three"? The mistake may have been assisted, if not originated, by a hasty misreading of Brandt's summary statement after his description of the burning of the three "English" ships: "Thus were the three ships, the largest and most powerful of all England, carrying each 80 guns, burnt to the water's edge and destroyed." ("Dus zijn die drie schepen, de grootste en weerbaarste van gansch Engeland, voerende elk tachtig stukken geschuts, tot het water toe afgebrand, en vernield.") But this is only one collective episode of the affair. We may add that Prof. Lodge says nothing about English ships "captured." Brandt mentions the "Royal Charles" (32 guns) and the "Jonathan" (24 guns, 150 men)—the latter also a capture from the Dutch in an earlier fight. This seems a rather important omission, especially as the "Royal Charles" (formerly the "Naseby," but rechristened for the conveyance of Charles II and his family from Holland to England at the Restoration) was one of the largest and finest ships of the English fleet ("een van de grootste en schoonste schepen der Engelsche vloot"), had borne the admiral's flag, and regularly carried 100 guns, though on the occasion, whether from parsimony or from the shallowness of the water, her armament had been reduced ("want men had er het zwaarste geschut afgelicht"). We say nothing of the English ships sunk in the river to bar the passage, except that Brandt mentions four fire-ships at Chatham ("daar lagen vier Engelsche branders dwars in de Rivier gezonken om de doorvaart te beletten"), and two large ships below Upnor Castle ("hier—that is, beneden het Kasteel van Upnor—hadden ze ook twee groote schepen gezonken om de Rivier te stoppen"), near the iron chain.

We are not stickling for details in a résumé; but we have difficulty in accepting Prof. Lodge's summary as adequate, even if six burnt ships were substituted for three. When Mr. C. T. Atkinson ("Cambridge Modern History," V, 188) says that "sixteen vessels in all" were "taken, burnt, or scuttled by the defenders, among them the 'Royal Charles' and three other vessels of almost equal strength"—no doubt Brandt's true English three—the impression is very different from that produced by Prof. Lodge's statement.

Curves.

Practical Curve Tracing. By R. Howard Duncan, A.R.C.Sc. (5s. net. Longmans.)

In selecting the title for his work, the author has been, in some respects, well advised; for (1) the treatise is more especially intended to help engineering students and others who, like them, are required to exercise their mathematical skill in essentially practical directions, and (2) the text enlarges on some of the principal means which such students have at their disposal when called upon to record the results of experiments in a manner at once effective and suitable for purposes of permanent reference and easy comparison. Considered, however, from another standpoint, the title is not adequate; for the treatise affords to the careful reader a very clear insight into many of the broad principles underlying the theory of the curves he is taught to draw. Mr. Duncan, besides being himself an expert in the subject, is also skilled in the methods of analysis and possesses qualifications that enable him to train the student so that he may know for what to look and may appreciate the meaning of the various elements that go to make up the functions of which it is his object to produce a graphical representation. Many of the diagrams, which naturally form not only an important, but an essential, part of the text-book, are of marked excellence. As may be supposed, the volume opens with a brief

explanation of Cartesian co-ordinates and axes of reference, and one is surprised to find in the course of a work of such calibre passages notable for a want of due regard to the *sense* of lines. The introductory chapter, to which we have just referred, is followed by an excellent one on the plotting of curves either from given data or from their equations, and, in connexion with this, we would ask the student to lay to heart the author's instructions both as to the intelligent and careful selection of units and scales for any given piece of work, and as to the due record of them when they have been suitably chosen. In the subsequent chapters the writer discusses, at considerable length and in a manner at once broad, clear, and suggestive, curves of various fundamental types, beginning with the straight line and taking up in succession the parabolic, the hyperbolic, the exponential, and the logarithmic families. The sine curve then engages his attention, and in the chapter devoted to it some of the most daintily finished diagrams of the text-book occur. Mr. Duncan now proceeds to consider the solution of equations by graphical methods, illustrating carefully both fundamental modes of procedure: namely, that of plotting the curve of the whole expression and finding its intersections with the x-axis—assuming Cartesian co-ordinates—and that of breaking up the expression into functions of simpler form and investigating the points where the less complex curves cut each other. An introduction of the reader to the root ideas of the differential and integral calculus is the subject of the last two chapters, the link between integration as a summation and integration as the inverse of differentiation being well brought out. Some useful tables—for example, four-figure tables of logarithms and antilogarithms—and a selection of exercises (with answers) close this interesting and very valuable text-book.

GENERAL NOTICES

CLASSICS.

"School Class Books."—*Select Letters of Seneca.* Edited by Walter C. Summers, M.A., late Fellow of St. John's College, Cambridge, Firth Professor of Latin in the University of Sheffield. (5s. Macmillan.)

The general acceptance of wider views of the field of Latin literature suitable for students may reassure Prof. Summers. Why honoursmen and passmen alike should not read Seneca, or why any argument should be necessary to prove that they should, is beyond our understanding. The present writer, at any rate, read a treatise of Seneca's for honours somewhere about forty years ago, and has never felt any the worse for it. Students will do well to study Prof. Summers's selections, at all risks to the purity of their vocabulary, the nicety of their syntax, and the orthodoxy of their philosophy. Seneca wrote better Latin than the Public Orator of any modern University, and he discourses as sensibly and suggestively as any University don. Prof. Summers furnishes elaborate and instructive introductions on (1) the pointed style in Greek and Roman literature, (2) the language and style of Seneca's prose, and (3) the critics of, and the literary debtors to, Seneca's prose. We will not inquire how far the matter is relevant to school requirements: the teacher will select the more pertinent points. The notes are very full and very good. The edition is a scholarly piece of work, and we have no doubt that it will be much more widely used than Prof. Summers seems to anticipate.

The Symposium of Plato. Edited by R. G. Bury, M.A., formerly Scholar of Trinity College, Cambridge, late Lecturer in Classics, Bryn Mawr College, U.S.A. (7s. net. Cambridge: Heffer. London: Simpkin, Marshall, & Co.)

Mr. Bury has already given proof of his quality in his edition of the "Philebus." It is surprising—although there are mitigations of one's surprise—that the "Symposium," "undeniably one of the masterpieces of classical literature," should have had to wait till now for a formal and substantial English commentary. "The interest of the book is not merely literary or philosophical; it appeals also to the wider circle of students of culture and of life, and of the 'criticism of life,' by its richness of suggestion and by its vividness of portraiture"—notably by its full and clear presentation of the personality of Socrates. Ample and efficient as is the introduction, we could wish that Mr. Bury had not troubled himself about the limits of "a moderate compass," and had spoken his mind unreservedly upon the numerous and interesting questions connected with the literary form and philosophical substance of the dialogue. Still he makes a weighty contribution to the discussion of the more important points. The critical notes are wisely conservative. Apart from general experience, "in many cases the papyrus [Oxyrhynchus, No. 843, Grenfell and Hunt] once more proves the antiquity of readings which modern criticism rejects or suspects." The explanatory notes are very instructive, and yet they indicate a large reserve of learning. A most scholarly, judicious, and able work.

(*Continued on page* 374.)

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Practical Arithmetics. Books VA and VIA. By W. Knowles, B.A., B.Sc. Lond., and H. E. Howard. (Pupils' Series, Book VA, 4d.; Book VIA, 5d. Teachers' Series, 1s. 6d. each. Longmans.)

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(*Continued on page 376.*)

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I regret that, by an oversight, I took the centre of the circle described by z at the origin. With the notation on p. 109 of *Reprint*, Vol. XVI, New Series, we have to eliminate c and d from

$$2p/c = 1 + b^2/(c^2+d^2), \quad 2q/d = 1 - b^2/(c^2+d^2),$$

and $(c-h)^2 + (d-k)^2 = r^2$ and not $c^2 + d^2 = r^2$. We then obtain the relation between p and q, *i.e.*, the locus described by w. The elimination is troublesome, and consists in obtaining c or d in two different equations, which may be reduced to cubics at the lowest. By putting $c = h + r\cos\theta$, $d = k + r\sin\theta$, we can see that the curve is unicursal; for we get

$$2p = \left(h + r\frac{1-t^2}{1+t^2}\right)\left(1 + \frac{b^2(1+t^2)}{(h^2+k^2+r^2)(1+t^2) + 2hr(1-t^2) + 4krt}\right).$$

and a similar value of $2q$, where $t = \tan\frac{1}{2}\theta$. I append a solution, by means of vectors, supplied by my friend, Mr. Balak Ram, M.A., I.C.S. (Ratnagiri).

Notation.—The conjugate of a complex quantity P will be denoted by $\overline{\mathrm{P}}$, and its absolute value by $|\mathrm{P}|$, so that $|\mathrm{P}| = |\overline{\mathrm{P}}| = \sqrt{(\mathrm{P}\overline{\mathrm{P}})}$.

Method.—Let the relation between w and z be $f(w, z) = 0$, and let the path of z be $\phi_1(x, y) = 0$ or its equivalent $\phi(z, \bar{z}) = 0$, where $z = x + iy$, and ϕ, being real, is symmetrical with respect to z and $\bar{z}$. The equation $f(w, z) = 0$ is equivalent to two equations, but, instead of taking the real and imaginary parts separately, we form the other equation by taking the conjugates of the imaginaries involved, including the constants in f. Thus we have

$$\phi(z, \bar{z}) = 0, \quad f(w, z) = 0, \quad \text{and} \quad \bar{f}(\bar{w}, \bar{z}) = 0.$$

Eliminating z, $\bar{z}$, we get $\psi(w, \bar{w}) = 0$, where, as ψ must be symmetrical in w and $\bar{w}$, $\psi = 0$ is real and equivalent to $\psi_1(u, v) = 0$, w being $= u + iv$.

Details.—Let α be the centre of the circle described by z. Put $\mathrm{Z} = z - \alpha$ and $\mathrm{W} = w - \alpha$. Then

$$2(\mathrm{W} + \alpha) = \mathrm{Z} + \alpha + b^2/(\mathrm{Z} + \alpha) \quad \text{or} \quad 2\mathrm{W} = \mathrm{Z} - \alpha + b^2/(\mathrm{Z} + \alpha)$$

or

$$\mathrm{Z}^2 - 2\mathrm{WZ} + b^2 - \alpha^2 - 2\alpha\mathrm{W} = 0,$$

$$f \equiv \mathrm{Z}^2 - 2\mathrm{WZ} + \mu^2 - 2\alpha\mathrm{W} = 0, \text{ say} \quad \ldots\ldots\ldots\ldots(1),$$

$$f(\bar{\mathrm{Z}}, \bar{\mathrm{W}}) \equiv \bar{\mathrm{Z}}^2 - 2\bar{\mathrm{W}}\bar{\mathrm{Z}} + \bar{\mu}^2 - 2\bar{\alpha}\bar{\mathrm{W}} = 0 \quad \ldots\ldots\ldots\ldots(2),$$

and

$$\phi_1(\mathrm{X}, \mathrm{Y}) = \mathrm{X}^2 + \mathrm{Y}^2 - c^2,$$

and therefore

$$\phi(\mathrm{Z}, \bar{\mathrm{Z}}) = \mathrm{Z}\bar{\mathrm{Z}} - c^2 = 0 \quad \ldots\ldots\ldots\ldots(3).$$

Eliminating $\bar{\mathrm{Z}}$ from (2) and (3), and then eliminating Z from the resulting equation and (1), we get

$$[(2\alpha\mathrm{W} - \mu^2)(2\bar{\alpha}\bar{\mathrm{W}} - \bar{\mu}^2) - c^4]^2$$
$$= 4c^2(2\alpha\mathrm{W}\bar{\mathrm{W}} - \mu^2\bar{\mathrm{W}} + c^2\mathrm{W})(2\bar{\alpha}\mathrm{W}\bar{\mathrm{W}} - \bar{\mu}^2\mathrm{W} + c^2\bar{\mathrm{W}}),$$

$$[4\alpha\bar{\alpha}\mathrm{W}\bar{\mathrm{W}} - 2(\alpha\bar{\mu}^2\mathrm{W} + \bar{\alpha}\mu^2\bar{\mathrm{W}}) + \mu^2\bar{\mu}^2 - c^4]^2$$
$$= 4c^2[4\alpha\bar{\alpha}\mathrm{W}^2\bar{\mathrm{W}}^2 + 2\mathrm{W}\bar{\mathrm{W}}(\alpha c^2\bar{\mathrm{W}} + \bar{\alpha}c^2\mathrm{W} - \alpha\bar{\mu}^2\mathrm{W} - \bar{\alpha}\mu^2\bar{\mathrm{W}} + c^4 + \mu^2\bar{\mu}^2)$$
$$- c^2(\mu^2\bar{\mathrm{W}}^2 + \bar{\mu}^2\mathrm{W}^2)] \ldots(4),$$

which is easily seen to be of the form

$$\mathrm{R}^4 + \mathrm{R}^2(a\mathrm{U} + b\mathrm{V}) + \mathrm{AU}^2 + 2\mathrm{HUV} + \mathrm{BV}^2 + \mathrm{LU} + \mathrm{MV} + \mathrm{N} = 0,$$

where the constants a, b, A, H, B, L, M, N depend upon the three real quantities involved in α, ... The path of W is thus a bicircular quartic.

To find the position of the node, if any:—

Let there be a node at $w = w'$, then w' corresponds to two values z_1, z_2 of z. Therefore

$$2w' = z_1 + b^2/z_1 = z_2 + b^2/z_2 \quad \text{or} \quad z_1 - z_2 = b^2(z_1 - z_2)/z_1z_2 \quad \text{or} \quad z_1z_2 = b^2.$$

Also $|z_1 - \alpha| = c$; hence, eliminating z_1, $|b^2/z_2 - \alpha| = c$

or

$$c = \left|\frac{b^2 - \alpha z_2}{z_2}\right| = \left|\frac{\alpha z_2 - b^2}{z_2}\right| = \frac{|\alpha| \cdot |z_2 - b^2/\alpha|}{|z_2|}$$

or

$$c|z_2| = |\alpha| \cdot |z_2 - b^2/\alpha|,$$

showing that z_2 lies on the circle

$$c|z| = |\alpha| \cdot |z - b^2/\alpha|.$$

By symmetry z_1 also lies on this circle. Thus z_1 and z_2 are the vectors to the intersections of the original circle and this circle, and there is one real or imaginary node at w' given by $2w' = z_1 + z_2$.

[The circle $c|z| = |\alpha z - b^2|$ is such that the point b^2/α and the origin are mutually inverse with respect to it.]

[If the circle described by z have its centre at the origin,

$$\alpha = 0, \quad \mu^2 = b^2 \text{ (real)}, \quad W = w, \quad \text{and} \quad Z = z.$$

Equation (4) is now

$$(b^4 - c^4)^2 = 4c^2[(c^4 + b^4)\, w\bar{w} - b^2c^2(w^2 + \bar{w}^2)]$$
$$= 4c^2[(c^4 + b^4)(u^2 + v^2) - 2b^2c^2(u^2 - v^2)]$$

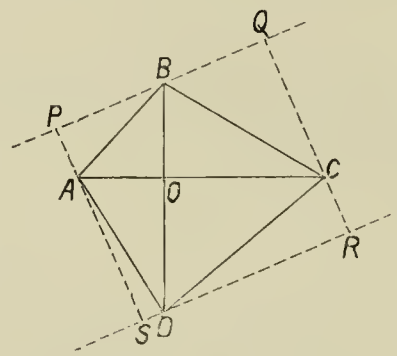
or

$$u^2/(b^2 + c^2)^2 + v^2/(b^2 - c^2)^2 = 1/4c^2,$$

an ellipse.]

16693. (T. K. Venkataraman, M.A. Suggested by Quest. 16580.)—Find the necessary relation between the sides of a quadrilateral if the diagonals are perpendicular, and with that condition, show geometrically that all rectangles circumscribing the quadrilateral are similar.

Solution by James Blaikie, M.A., *and* Krishna Prasad De, M.A.



Let ABCD be the quadrilateral whose diagonals intersect at right angles at O.

Then $AB^2 + CD^2 = OA^2 + OB^2 + OC^2 + OD^2 = AD^2$,

and $AB^2 + CD^2 = AD^2 + BC^2$

is the required relation.

Also if PQRS be a circumscribing rectangle, the ratio of AC to BD is clearly equal to the ratio of PQ to QR, since AC makes the same angle with PQ as BD makes with QR. Thus the ratio of PQ to QR is constant, and all circumscribing rectangles are similar.

11731. (Professor Schoute.)—Prove that the equation

$$\begin{vmatrix} a_{11}-x, & a_{12}, & \dots & a_{1n} \\ a_{21}, & a_{22}-x, & \dots & a_{2n} \\ \dots & \dots & \dots & \dots \\ a_{n1}, & a_{n2}, & \dots & a_{nn}-x \end{vmatrix} = 0$$

does not admit real roots differing from ± 1 under the conditions

$$\sum_{j=1}^{j=n} a_{ij}^2 = 0, \quad \sum_{k=1}^{k=n} a_{ik}a_{jk} = 0 \quad (i \neq j)$$

of an orthogonal substitution.

Solutions (I) *by* Thomas Muir, LL.D.; (II) *by* Professor Nanson; (III) *by* T. W. Chaundy.

(I) A misprint [also pointed out by Mr. Chaundy—Ed.] may account for the problem being left so long without solution, the 1 on the right-hand side of the first condition being printed 0 in the year 1892, and again in 1909.

If the determinant be represented by $f(x)$, then the equation whose roots are the squares of the roots of the given equation is

$$f(x)\,f(-x) = 0,$$

which, by reason of the fact that $|a_{11}a_{22}\dots a_{nn}|$ is an orthogonant, takes the form

$$\begin{vmatrix} 1-x^2 & (a_{12}-a_{21})x & (a_{13}-a_{31})x & \dots \\ (a_{21}-a_{12})x & 1-x^2 & (a_{23}-a_{32})x & \dots \\ (a_{31}-a_{13})x & (a_{32}-a_{23})x & 1-x^2 & \dots \\ \dots & \dots & \dots & \dots \end{vmatrix} = 0,$$

or, say

$$\begin{vmatrix} 1-x^2 & \alpha_2 x & \alpha_3 x & \dots \\ -\alpha_2 x & 1-x^2 & \beta_3 x & \dots \\ -\alpha_3 x & -\beta_3 x & 1-x^2 & \dots \\ \dots & \dots & \dots & \dots \end{vmatrix} = 0.$$

But the left-hand member here being a skew determinant with unvarying diagonal element $1-x^2$ can be expressed as a series in descending powers of $1-x^2$, the last power when n is even being the 0th and when n is odd the 1st. Thus, in the case where n is 4 the equation is

$$(1-x^2)^4 + (1-x^2)^2[(\alpha_2 x)^2 + (\alpha_3 x)^2 + \dots + (\gamma_4 x)^2] + \begin{vmatrix} \alpha_2 & \alpha_3 & \alpha_4 \\ & \beta_3 & \beta_4 \\ & & \gamma_4 \end{vmatrix}^2 x^4 = 0;$$

and, as this cannot be satisfied by giving x^2 a positive value, it follows that the original equation of the fourth degree cannot have real roots. Next, in the case where n is 3 the equation is

$$(1-x^2)^3 + (1-x^2)^2[(\alpha_2 x)^2 + (\alpha_3 x)^2 + (\beta_3 x)^2] = 0,$$

or

$$(1-x^2)[(1-x^2)^2 + (\alpha_2 x)^2 + (\alpha_3 x)^2 + (\beta_3 x)^2] = 0;$$

and, as the only positive value of x^2 which can satisfy this is 1, it follows that the only real root of the original equation of the third degree is $+1$ or -1.

(II) If the equation has a real root k, then it is possible to find real values of $x_1, x_2, \dots, x_n$, such that $kx_p = \Sigma_q a_{pq}x_q$, and hence

$$k^2 \Sigma x_p^2 = \Sigma x_p^2,$$

whence $k^2 = 1$ as the x's are real. [Rest in *Reprint*.]

16215. (H. Bateman, B.A.)—With a point Q on the circum-circle of a triangle ABC as centre, two conics are described, one to touch the sides of the triangle, the other to pass through the angular points. Prove that they are similar.

Remarks by M. T. Naraniengar, M.A.

Mr. C. E. Youngman observes that the result is not always true for hyperbolas (*vide* p. 209, *Educational Times*, May, 1910, and *Reprint*, New Series, Vol. xviii, p. 86). The apparent dissimilarity noticed by him in the case of hyperbolas may be explained as follows.

The condition of similarity of two hyperbolas is satisfied so long as the angles between the asymptotes are the same; but with this distinction, viz., if the curves subtend equal angles at the centre, the ratio of similitude is *real*; while, if the curves subtend supplementary angles at the centre, the ratio of similitude is *imaginary*. Thus, a hyperbola and its conjugate may be regarded as similar with an imaginary ratio of similitude. In other words, the dissimilarity noticed by Mr. C. E. Youngman is only apparent. The property of the hyperbolas, under the circumstances, is better expressed by saying that they are either *similar* or *conjugate*.

With regard to Mr. C. E. Youngman's query: "With a given ABC, what positions of Q lead to dissimilar hyperbolas?"

The following discussion may be interesting:—

Bisect the sides of ABC at D, E, F, and draw parallels cutting the circum-circle at $d_1, d_2, e_1, e_2, f_1, f_2$. Also, through A, B, C draw parallels AA′, BB′, CC′. Then, when the centre Q of similar conics is at B or C, the circum-conic is a pair of straight lines, viz., BA, BC, or CA, CB. When Q is at d_1, the circum-conic is a pair of parallel straight lines (AB, CC′). Similarly at d_2. Hence it may be inferred that for any Q between B and d_1 (or C and d_2) the conic is a hyperbola; while, if Q lies between d_1 and d_2, the conic is an ellipse. Similar remarks apply to e_1, e_2, f_1, f_2.

16712. (W. Gallatly, M.A.)—A Simson line making angles $\theta_1, \theta_2, \theta_3$ with the sides of ABC, prove that its equation is

$$a\alpha \cot\theta_1 + b\beta \cot\theta_2 + c\gamma \cot\theta_3 = 0.$$

Note by G. N. Bates.

The result in the Question appears in a paper by W. S. M'Cay, *Trans. R. Irish Academy*, July, 1889.

The Proposer remarks that the formula was obtained independently. To demonstrate its truth, prove that the perpendicular from A on the Simson Line $= 2R \cos\theta_1 \sin\theta_2 \sin\theta_3$.

15388, 16593, 16669. (15388.) (H. Bateman.)—S, S′, and C are the foci and centre of a fixed conic touching four lines; T, T′, and O the foci and centre of a variable conic touching the four lines. Prove that ST.ST′, S′T.S′T′, and CO are to one another in constant ratios.

(16593.) (S. Narayana Aiyar.)—Prove that every conic inscribed in a triangle passes through at least three pairs of real points which are isogonal conjugates with respect to the triangle, but never more than four pairs. Also give a geometrical construction to determine these points. Hence show that the inscribed (or an escribed) circle of a triangle passes through three and only three pairs of real points which are isogonal conjugates with respect to the triangle.

(16669.) (C. E. M'Vicker, M.A.)—If X, Y are the foci of a variable conic touching four given straight lines, and F the focus of the parabola of the system; FX.FY = constant.

Solution by C. E. Youngman, M.A.

Let BCA′, CAB′, ABC′, A′B′C′ be the four given lines in Question 16669, and XY, X′Y′ the foci of two of the conics. The locus of these foci is a cubic (Salmon, Ch. xv); in fact, since XY are isogonals in ABC, their trilinear co-ordinates are $(\alpha : \beta : \gamma)$ and $(\alpha^{-1} : \beta^{-1} : \gamma^{-1})$, and the condition that their mid-point should lie on the fixed line LMN

$$l\alpha + m\beta + n\gamma = 0$$

gives the equation

$$(l\alpha + m\beta + n\gamma)(a\beta\gamma + b\gamma\alpha + c\alpha\beta) + (l\beta\gamma + m\gamma\alpha + n\alpha\beta)(a\alpha + b\beta + c\gamma) = 0.$$

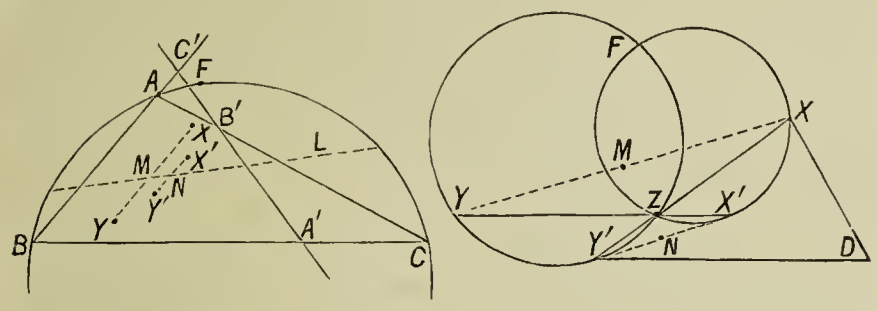
This cubic coincides with the locus (known to be itself a cubic—see Question 16110, Vol. xiii, p. 102) of points at which XX′ and YY′, and also XY′ and X′Y, subtend equal angles; for, since that occurs at any intersection of two common tangents, the two cubics have ten points in common, A, B, C, A′, B′, C′, X, X′, Y, Y′. It appears, then, that we get the same locus whatever two pairs of foci we take for foundation, and that AA′, BB′, CC′ (since their mid-points lie on

LMN) may count as such pairs; and the inference follows that the curve depends on XY and X′Y′ in the same way in which it depends on AA′ and BB′; that is, it is the locus of the foci of conics touching the four lines XX′, YY′, XY′, X′Y.

Hence, every conic which touches the common tangents of two other conics has a confocal which touches the four lines, not axes, joining the foci of those two others.

One corollary is that F is the focus of a parabola touching XX′, YY′, XY′, X′Y, and is therefore common to the circles about the four triangles made by these lines. (This particular result, if not also the more general theorem, can be proved without any help as above from cubics; see the *Mathematical Gazette*. p. 163, Dec. 1909.) Hence the triangles FXY′, FX′Y are equiangular, and

$$FX.FY = FX'.FY'.$$



Also $$XY' : X'Y = FX : FX'.$$

Complete the parallelogram X′YY′D; then

$$\angle XY'D = XZX' = XFX' \quad \text{and} \quad XY' : Y'D = FX : FX';$$

therefore XY′D and XFX′ are similar; therefore

$$XX'.XY' = FX.XD.$$

But XD = 2MN; so 15388 is proved.

Cor. 2.—Since a conic is fully determined either by five tangents or by one tangent and two foci, that conic which touches the four common tangents and one of the other four lines must coincide with its confocal, and will therefore touch the remaining three lines. Here let X′ and Y′ close up together (into an in- or ex-centre of ABC); then the two tangents from X (or from Y) become one; that is, X and Y lie on the conic. Hence (Question 16889), in any triangle, if a pair of isogonals lie on an inscribed conic, the tangents thereat will meet at an in- or ex-centre I; and, conversely, if tangents be drawn to an in-conic from an in- or ex-centre, the points of contact will be isogonals.

This solves 16593, for it is fairly obvious that no in-conic can enclose two I's.

16910. (Professor E. Hernández.)—Si a', b', c', sont les côtés du triangle dont les sommets sont les pieds des hauteurs du triangle ABC, on a $$a'/a^2 + b'/b^2 + c'/c^2 = \tfrac{1}{2}(a/bc + b/ca + c/ab).$$

Solutions (I) *by* F. Mayor; (II) *by* Edith J. D. Morrison, M.A., *and* F. G. W. Brown, B.Sc., L.C.P.

(I) Draw RS perpendicular to BC,

$$RS = RP \sin RPS = b' \sin A,$$

and $RS = RB \sin B = a \sin B \cos B$;

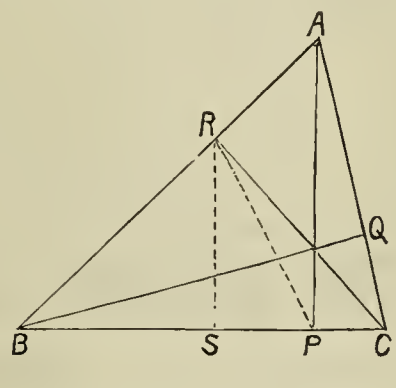
therefore

$$b' = a \sin B \cos B/\sin A;$$

therefore $b' = b \cos B$;

therefore

$$\begin{aligned} &a'/a^2 + b'/b^2 + c'/c^2 \\ &= \cos A/a + \cos B/b + \cos C/c \\ &= (b\cos C + c\cos B)/2bc + \ldots + \ldots \\ &= \tfrac{1}{2}(a/bc + b/ca + c/ab). \end{aligned}$$



(II) The circumcircle of the pedal triangle being the nine-point circle of ABC, $$2R' = a'/\sin 2A = R = \tfrac{1}{2}a/\sin A,$$

i.e., $$\Sigma . b'/b^2 = \Sigma . \cos B/b = \Sigma (a^2 + c^2 - b^2)/2abc = \Sigma . a/2bc.$$

The Proposer and many others solve as follows:—

On a $$a' = a\cos A, \quad b' = b\cos B, \quad c' = c\cos C.$$

Mais, puisqu'on a $\cos A = (b^2 + c^2 - a^2)/2bc$, ..., on aura aussi

$$a'/a^2 = (b^2 + c^2 - a^2)/2abc, \quad b'/b^2 = (a^2 + c^2 - b^2)/2abc,$$
$$c'/c^2 = (a^2 + b^2 - c^2)/2abc,$$

et en ajoutant on trouve la formule proposée.

16884. (J. J. Barniville, B.A., I.C.S.)—Resolve

$$x^6 - x^5 + x^4 - x^3 - x^2 - x + 1$$

into two cubic factors. If $u_n + u_{n+1} = u_{n+3}$, prove that

$$u_n^2 + u_{n+2}^2 + u_{n+6}^2 = u_{n+1}^2 + u_{n+3}^2 + u_{n+4}^2 + u_{n+5}^2,$$

and $$u_n^2 + u_{n+7}^2 = 2u_{n+4}^2 + 2u_{n+5}^2.$$

Solutions (I) *by* Lt.-Col. Allan Cunningham, R.E., *and many others*; (II) *by* A. M. Nesbitt, M.A.

(I) 1. Assume (for trial)

$$N = x^6 - x^5 + x^4 - x^3 - x^2 - x + 1 = (x^2 + bx^2 + cx \pm 1)(x^3 + \beta x^2 + \gamma x \pm 1).$$

On actual trial the factors ending with +1 are found to fail, so that −1 is to be tried. Multiplying the two factors together, and equating coefficients of like powers of x in the given form with those in the product form, gives

$$b + \beta = -1, \quad c + \gamma = +1, \quad b\beta + c + \gamma = +1, \quad c\gamma - b - \beta = -1,$$
$$b\gamma + c\beta - 2 = -1;$$

hence it follows directly $\beta = 0$, $b = -1$, $\gamma = -1$, $c = +2$, whence the factorization is $N = (x^3 - x^2 + 2x - 1)(x^3 - x - 1)$.

2. For shortness, write $v_0 = u_n$, $v_1 = u_{n+1}$, ..., $v_r = u_{n+r}$.

Hence $v_6 = v_4 + v_3$, $v_5 = v_3 + v_2$, $v_0 = v_3 - v_1$, $v_1 = v_4 - v_2$.

Hence $v_6^2 - v_5^2 = v_4^2 - v_2^2 + 2(v_3v_4 - v_2v_3) = v_4^2 - v_2^2 + 2v_3v_1$,

and $$v_0^2 = v_1^2 - 2v_1v_3 + v_3^2.$$

Adding $$v_0^2 + v_6^2 - v_5^2 = v_1^2 + v_3^2 + v_4^2 - v_2^2,$$

or $$v_0^2 + v_2^2 + v_6^2 = v_1^2 + v_3^2 + v_4^2 + v_5^2$$

(the first required relation).

3. The relation just found gives also

$$v_1^2 + v_3^2 + v_7^2 = v_2^2 + v_4^2 + v_5^2 + v_6^2.$$

Adding these two relations gives $v_0^2 + v_7^2 = 2v_4^2 + 2v_3^2$ (the second relation).

(II) The given expression may be written

$$(x^3 - \tfrac{1}{2}x^2 + \tfrac{1}{2}x - 1)^2 - (\tfrac{1}{2}x^2 - \tfrac{3}{2}x)^2;$$

so that its factors are $x^3 - x - 1$ and $x^3 - x^2 + 2x - 1$.

Denote u_n, u_{n+1}, ..., u_{n+7} by a, b, c, d, e, f, g, h. Then we have

$$a + b = d, \quad b + c = e, \quad c + d = f, \quad d + e = g, \quad c + f = h;$$

whence $b(c + e) = b(f + g - 2d)$. But $b = e - c = g - f$; therefore

$$e^2 - c^2 = g^2 - f^2 - 2bd, \quad \text{and} \quad 2bd = b^2 + d^2 - a^2,$$

so that $e^2 - c^2 = g^2 - f^2 + a^2 - b^2 - d^2$ or $a^2 + c^2 + g^2 = b^2 + d^2 + c^2 + f^2$.

Further $a = d - b = f - e$; therefore $a^2 = (e - f)^2$; therefore

$$a^2 + (c + f)^2 = 2(c^2 + f^2), \quad i.e., \quad a^2 + b^2 = 2(e^2 + f^2).$$

16898. (Lt.-Col. Allan Cunningham, R.E.)—Let $N = (1 \mp ky^{2r-2} + y^{4r})$. Find certain series of numbers (y) for which N is algebraically factorizable into two co-factors where $k = 1$ or 2.

Solution by the Proposer.

$$\begin{aligned} N &= (1 \mp ky^{2r-2} + y^{4r} = (1 + y^{2r})^2 - (y^{r-1})^2(2y^2 \pm k) \\ &= \text{a difference of squares, if } 2y^2 \pm k = z^2, \\ &\quad k = 1 \text{ requires } z^2 - 2y^2 = \pm 1, \\ &\quad k = 2 \text{ requires } y^2 - 2(\tfrac{1}{2}z)^2 = \mp 1 \ [z \text{ even}]. \end{aligned}$$

Hence all the solutions of these Pellian equations give N algebraically factorizable.

16899. (Professor E. B. Escott.)—Show that

$$\frac{1}{1.2.3} + \frac{1}{4.5.6} + \frac{1}{7.8.9} + \ldots = \frac{\pi\sqrt{3}}{12} - \tfrac{1}{4}\log_e 3.$$

Solution by Professor J. C. Swaminarayan, M.A., *and* C. M. Ross, B.A.

The general term on the left-hand side

$$= \frac{1}{(3n-2)(3n-1)3n} = \tfrac{1}{2}\left[\frac{1}{3n-2} - \frac{2}{3n-1} + \frac{1}{3n}\right];$$

hence $$\frac{1}{1.2.3} + \frac{1}{4.5.6} + \frac{1}{7.8.9}$$

$$\begin{aligned} &= \tfrac{1}{2}[(\tfrac{1}{1} - \tfrac{2}{2} + \tfrac{1}{3}) + (\tfrac{1}{4} - \tfrac{2}{5} + \tfrac{1}{6}) + \ldots] \\ &= \tfrac{1}{2}\int_0^1 [(1 - 2x + x^2) + (x^3 - 2x^4 + x^5) + \ldots]\,dx \\ &= \tfrac{1}{2}\int_0^1 \frac{(1-x)^2}{1-x^3}\,dx = \tfrac{1}{2}\int_0^1 \frac{dx\,(1-x)}{1+x+x^2} \\ &= \tfrac{1}{2}\int_0^1 \frac{\tfrac{3}{2}dx}{1+x+x^2} - \tfrac{1}{2}\int_0^1 \frac{\tfrac{1}{2}(1+2x)}{1+x+x^2}\,dx \\ &= \tfrac{3}{4}\int_0^1 dx \Big/ \left[(x+\tfrac{1}{2})^2 + \left(\frac{\sqrt{3}}{2}\right)^2\right] - \tfrac{1}{4}[\log(1+x+x^2)]_0^1 \\ &= \tfrac{3}{4}\,\frac{2}{\sqrt{3}}\left[\tan^{-1}\frac{2x+1}{\sqrt{3}}\right]_0^1 - \tfrac{1}{4}\log_e 3 \\ &= \frac{\sqrt{3}}{2}(\tfrac{1}{3}\pi - \tfrac{1}{6}\pi) - \tfrac{1}{4}\log_e 3 = \frac{\pi\sqrt{3}}{12} - \tfrac{1}{4}\log_e 3. \end{aligned}$$

[Rest in *Reprint*.]

QUESTIONS FOR SOLUTION.

16932. (D. Biddle. Suggested by Question 16664.)—Show how to produce at will instances of 3-figure factors whose product contains the same digits. Ex.: 251.500, 161.725.

16933. (The late Professor Cochez.)—Calculer à $\frac{1}{100}$ près

$$S = \tfrac{1}{2} + 1/(2^2.2) + 1/(2^3.3) + \ldots + 1/(2^n.n).$$

16934. (J. J. Barniville, B.A., I.C.S.)—If $u_n + au_{n+1} = u_{n+2}$, prove that $u_n^2 + u_{n+3}^2 = (a^2+1)(u_{n+1}^2 + u_{n+2}^2)$.

Find the scale of relation for u_n^3.

16935. (Professor Nanson.)—If $a, b, c, \ldots$ are n positive quantities which are not all equal, show that

$$(n-1)\,\Sigma a^2 > 2\Sigma ab, \quad (n-2)\,\Sigma a^3b^3 > 3\Sigma a^2b^2c^2,$$
$$(n-3)\,\Sigma a^4b^4c^4 > 4\Sigma a^3b^3c^3d^3,$$

and so on, and hence show that the arithmetic mean is not less than the geometric mean.

16936. (Lt.-Col. Allan Cunningham, R.E.)—Let $M_q = (2^q - 1)$, where q is an odd integer. Show that $M_q = T^2 - 2U^2 = 2U'^2 - T'^2$ always; also that, when q is prime, $M_q = T^2 - 2(qu)^2$ always; and find the actual expressions. Show also that, when q is prime, M_q = one of $(qt)^2 - 2U^2$, $(2qu')^2 - T'^2$, $2U'^2 - (qt')^2$; show when each form is possible, and show how to find the actual numerical expressions for given (prime) values of q without tentative work, and give the actual results when $q = 3, 5, 7, 11, 13, 17$. Examine also the possibility of the above forms when q is composite, and give the results when $q = 9, 15$.

16937. (C. M. Ross, B.A.)—Tangents to the hyperbola $x^2 - y^2 = a^2$ are drawn from points on the circle $x^2 + y^2 = a^2$. Show that the locus of the middle points of the chords of contact is the curve

$$(x^2 - y^2)^2 = a^2(x^2 + y^2).$$

Trace this curve.

16938. (Professor J. C. Swaminarayan, M.A.)—Show that the length of the arc of the cissoid between the cusp and the point where it cuts the circle used in its construction is

$$2a\left\{\sqrt{5} - 2 + \sqrt{3}\log\left[\sqrt{2}(2+\sqrt{3})/(\sqrt{5}+\sqrt{3})\right]\right\},$$

where a denotes the radius of the circle.

16939. (Professor Sanjána, M.A.)—Construct that rectangular circum-hyperbola of a triangle whose centre lies on the in-circle of the triangle.

16940. (M. T. Naraniengar, M.A.)—The sides of an inscribed triangle of a conic subtend equal angles at the focus. Show that the pedal circle of the focus with respect to these sides is a fixed circle.

16941. (S. Narayana Aiyar.)—The auxiliary circles of the four conics which circumscribe a triangle with the orthocentre, or the in-centre, or an ex-centre, as the focus touch the circum-circle of the triangle.

16942. (A. W. H. Thompson.)—Show that the conics obtained by reciprocating a circle in regard to the members of a system of concentric rectangular hyperbolas are all touched by another circle.

16943. (C. E. Youngman, M.A.)—Four circles in successive pairs intersect at A, A′; B, B′; C, C′; D, D′. Prove that, if A, B, C, D are concyclic, so are A′, B′, C′, D′; and, when the first four radii are given, find conditions for the other two circles to be equal.

16944. (R. C. Archibald, Ph.D., M.A.)—Let I be the centre of a circle which touches the sides of a triangle ABC in D, E, F. Show that AI produced meets ED in J and FD produced, say, in K, such that BJ is parallel to CK and EF. State a similar theorem for an escribed circle.

16945. (T. W. Chaundy, B.A.)—Calling the triangle formed by the circum-centre and the Brocard points of a triangle its "central triangle," show that the circumscribing circle of a triangle, its central triangle, the central triangle of this triangle, and so on, belong to one coaxal system; also that the two centres of similitude of equilateral triangles inscribed in any one of these triangles are the same whichever the triangle.

16946. (Philip T. Stephenson, B.A.)—In a triangle ABC, O and I are the circum-centre and in-centre, D the centre of BC, K the centre of the arc BC opposite to A. Take S in DK, so that DS = OD; J in KI, so that IJ = IA. Complete the parallelogram KOIU. Cut off from IU, IT = $2r$. Prove (1) UJ = ST; (2) S, J, T, U, K lie on a circle; (3) SJ = TU. Deduce Feuerbach's theorem. (If this proof of Feuerbach's theorem has been given before, I should be glad to be informed.)

16947. (F. G. W. Brown, B.Sc., L.C.P.)—In a triangle ABC, if $(2s-3b)^2 = (4s-3b)(3a-2s)$, prove that the angles are in arithmetical progression, the common difference being

$$\cos^{-1}\left\{[2(2s-a)(s-b)(s-c)]/abc\right\}.$$

16948. (Professor Neuberg.)—Soient P le point de concours des droites de Simson de deux points M, N de la circonférence circonscrite au triangle ABC. Si R est le rayon de cette circonférence et si α, β, γ sont les angles de la corde MN avec les côtés BC, CA, AB du triangle, démontrer que la distance de P à la droite MN est égale à

$$2R\cos\alpha\cos\beta\cos\gamma.$$

16949. (W. Gallatly, M.A.)—Prove that the normal co-ordinates of the centre of Taylor's circle are given by

$$\alpha \propto \cos^2 A\cos B\cos C - \sin^2 A\sin B\sin C;\ \ldots.$$

Note.—This agrees with Milne's *Companion*, p. 145, but is obtained by another method.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS)

11751. (Professor Nash, M.A.)—Show that no number of the form $(8n-1)4^m$, where m, n are integers, including $m = 0$, can be expressed as the sum of three squares, and that all other numbers can be so expressed. [Professor Nash has not yet obtained a proof of the second part of this theorem, but believes it to be true, as he has found that it holds good for all numbers from 1 to 2100. It agrees with the statement of Professor Cayley in the article on "Numbers" in the *Encyclopaedia Britannica*, that all numbers of the form $2^q(4n+1)$, where $4n+1$ is a prime number, are the sum of two squares, and that numbers of the form $4n+2$, or $8n+3$, are the sum of three squares.]

12457. (W. J. Dobbs, M.A.)—An open square box of length a and height $2na$ (internal dimensions) is placed on a horizontal plane. Show that at a time when the altitude of the Sun is α and its direction β with a side of the box, the area of the portion of the interior surface in the shade is

$$a^2[4n + (1+n)(\lambda+\mu) - \lambda\mu],$$

where $\lambda = 2n\cot\alpha\cos\beta, \quad \mu = 2n\cot\alpha\sin\beta,$

provided λ and μ are each < 1. Find also the area when λ and μ are either or both > 1.

12604. (Professor Haughton, F.R.S.)—A traveller has reason to believe that some local magnetic attraction affects his prismatic compass. How can he find the deviation by means of the Sun only, without instruments?

12605. (Professor Morley.)—Salmon states ("H. P. C.," § 280) that, if a line meets a Cartesian in four points, the sum of their distances from any focus is constant. Prove that for "line," we may substitute "non-circular algebraic curve."

13157. (J. J. Walker, F.R.S.)—If $\alpha\beta\gamma$, $\alpha'\beta'\gamma'$ are the vectors to the corners of two congruent plane triangles in space, prove that

$$S\Sigma V(\beta-\beta')(\gamma-\gamma')(\Sigma V\beta\gamma - \Sigma V\beta'\gamma') = 0.$$

13196. (Professor Matz.)—Find the average area of all regular polygons having a *constant* apothem.

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CONTENTS.

	Page
Leader: School and Employment	393
Notes	394
The British Association Meeting at Sheffield—Principal Miers's Presidential Address in the Education Section—The *Times* "Educational Supplement"—The Training of Character—Syllabus of Mathematics for Austrian Gymnasien—The suggested Training College for Indian Competition-wallahs.	
Summary of the Month	396
The Educational Ladder	398
The British Association at Sheffield	398
Prof. Hobson on Modern Mathematics	398
Principal Miers on University Education	399
Mental and Physical Factors in Education: Committee's Report	400
Mr. Blair on the Relations of Science to Industry and Commerce	407
The College of Preceptors:	
Certificate Examinations, July, 1910: List of Successful Candidates at Colonial and Foreign Centres	401
Professional Preliminary Examination: Pass List, September, 1910	402
Meeting of the Council	402
Eve Memorial Fund: List of Contributors	402
Current Events	405
Fixtures — Honours — Endowments and Benefactions — Appointments and Vacancies—Literary—General.	
The Relations of Science to Industry and Commerce: Address to the British Association at Sheffield by Mr. R. Blair, M.A., B.Sc., Education Officer, London County Council	407
Evening Education in London	410
A Royal Commission on Higher Education (*Morning Post*)	411
Miss Kate Stevens (*Educational News*, Edinburgh)	412
Trade Union Educational Policy	412
Reviews	412
A Literary History of Rome from the Origins to the Close of the Golden Age (Wight Duff)—Principles and Methods of University Reform: Report of the Hebdomadal Council, Oxford (Lord Curzon of Kedleston).	
General Notices	414
First Glances	418
Mathematics	419

The Educational Times.

School and Employment.

It is related that a famous medical professor, contemplating pitifully his students at graduation, solemnly expressed his wonderment as to what would become of them all. Some such speculation seems to have inspired Mr. Blair, the Education Officer of the London County Council, when he set on foot the inquiries on the replies to which he based the striking and far-reaching paper that he read before the British Association at Sheffield, a first instalment of which we print in our present issue. The very large amount of evidence on which the paper is founded was collected from four different sources—graduates, teachers at Universities and at higher technical institutions, men of affairs, and his Majesty's Consuls; and there is hardly a country in the world that has not contributed some of the information. We must confine ourselves here to the mere indication of the main results and suggestions.

The graduates, at the close of their University career, found a difficulty in obtaining work other than teaching, and teaching was therefore not a matter of choice, but of hard necessity. The college teachers state that, on the whole, there is an improvement in the attitude of the market towards the college-trained man. Their experience is that, as a rule, a really first-class man has no great difficulty in obtaining a good start. They feel, sure, however, that there are still many barriers to break down, and they are strongly of the view that they cannot make first-class men out of second-class material.

The men of affairs are divided in their views: some favour the college-trained man, others will not look at him. The point of view is, of course, largely determined by a man's own training and experience. Men at the head of affairs who have been trained at the University are more disposed to be sympathetic towards University men than those who have not had such a training. Moreover, the experience of some very large firms has been unfortunate. The method of selecting University men for posts in industry and commerce is somewhat haphazard, if, indeed, it does not wholly belong to that class of appointment which is obtained through influence, and consequently the experience of some firms has been an unhappy one.

The Consuls criticize severely (as for many years they have persistently done in their official reports) the conservative, if not useless, methods of advertisement still adopted by British firms other than first class, and they are strong in their appeal for more commercial travellers. They speak well of the natural qualities of the British commercial traveller; but they put their finger on a weak spot when they say that, as a rule, he is deficient in knowledge of modern languages.

It will be seen from the instalment of the paper which we publish to-day that a considerable study has been made of the opportunities afforded by Agriculture, Engineering, and the Chemical industries to men who have been trained in applied science; and the statement of the methods by which the communication between the colleges and these industries has been secured and maintained prepares the way for the suggestions that were made towards the close of the paper. Before making these suggestions, Mr. Blair stated that "the normal attitude of the employers, if not of the public, may be expressed in three sentences":

(1) Only those value higher education who have felt the need for it.
(2) The purely practical man can do much, the purely theoretical man can do little; a combination is therefore necessary. Should one quality only be obtainable, that quality should be the purely practical one.
(3) Teaching institutions may assist individuals to get on, but they form no essential part of an industrial or commercial system.

For these three sentiments Mr. Blair proposed to substitute three others:

(1) Setting aside exceptions, every man who achieves success must give so much time to fit himself for his work, whether the time is given in college under guidance and discipline or is expended in self-education.
(2) In the end, and again setting aside exceptions, the man who has received the highest training in college under guidance and discipline will, other things being equal, achieve by far the greater success.
(3) The work of research and training carried on in technical school and University college is an integral part of any nation's educational, commercial, and industrial organization.

The suggestions for establishing or improving the connexion between college and workshop, factory, or office are these:

(1) Every specialized department of applied science should have an expert consultative committee.
(2) A connexion should be maintained with old students and a record kept of their after-careers.
(3) The establishment of Appointments Boards at every University and technical college.
(4) Changes in curriculum and degree requirements.

(5) More liberal provision of specialized courses suitable to the heads of firms or their successors.
(6) A new attitude towards modern languages.

The formation of expert consultative committees to advise as to the character of the work and to form a bond of union between the college and factory and workshop cannot, one would think, be opposed by any but the most conservative colleges. Such expert consultative committees have been found most valuable in Leeds University and in the Glasgow and West of Scotland Technical College. It is surely obvious that, if these two great institutions, in addition to the advantages which they enjoy through being situated in the heart of great industrial communities, have found the establishment of such expert committees of great value, other colleges cannot find insuperable objections to their formation.

As to the creation of Appointments Boards, it is really wonderful how slow our Universities can be in adopting a useful idea. It is now a considerable time since Oxford and Cambridge showed the way in this respect, and yet it will found on consulting a Blue book recently issued by the Board of Education that several of the Universities and University colleges aided by the Treasury grant still leave the all-important matter of marketing their products to individual professors, to the Principal, or to the secretary. Individual professors, the Principal, and the secretary have, no doubt, done all that circumstances permitted; but the establishment of an organization is demanded, and we have had indications that students' representative councils will join before long in urging this demand.

Our secondary schools should be interested in the point that has been made about the teaching of modern languages. Mr. Blair appealed for the utilitarian point of view in languages more than for the scholar's. An examination of the time-tables of our secondary schools would probably show about three or four hours per week as the average time devoted to French or German. If really useful work is to be done in schools, more time will have to be devoted to modern languages in the latter years of the school career. The German secondary schools succeed in getting their pupils during the last year to read, write, and speak English with fair fluency, and their success is, in the main, due to two facts—a highly qualified teacher and, towards the close of the school career, six hours' school work per week to the language in question.

There is, perhaps, one other suggestion that might have been made. British initiative is leading in education to a great but, on the whole, not altogether organized movement, and there is a danger of much overlapping and waste. There are, no doubt, certain faculties that must be established in all the Universities or technical institutions of University rank, but there is a danger in the tendency of each institution to increase the number of its faculties, and so to lead, on the whole, to more faculties than necessary, and to the establishment of second-rate faculties rather than faculties of exceptional quality. In these days of great specialization the best thing for our system of education would be a sufficient number of the highest institutions, each having a certain number of necessary departments, with the addition in each of something that is unique. There is, perhaps, no great danger (though there is some) in the establishment of a faculty of Commerce at each of our Universities; but it would be something in the nature of a disaster if anything more than one University were to devote their energies to such a subject as Brewing, or more than one University were to establish a faculty of Coal, Gas, and Fuel Industries. If each of our great teaching institutions were to have one of its faculties of applied science unique in equipment, staff, and objects, our organization of higher technical education would be unequalled. We are greatly mistaken if the Royal Commission of London University has not such problems before its mind, and we trust that before any University establishes a new faculty or department greater pains will be taken to ascertain the demand than would appear to have been done at Oxford in connexion with a business career, judging from the report set out on pages 89–95 of the Report of the Hebdomadal Council just published.

NOTES.

The British Association held its annual meeting this year at Sheffield under the presidency of the Rev. Prof. T. G. Bonney, Sc.D., LL.D., F.R.S. When it met at Sheffield thirty-one years ago, the attendance was 1,404; this year, notwithstanding the enormous increase of Sheffield in size and in importance, the number of members and associates was only 1,300. Possibly the attraction of one or other of the many congresses that have been in session at various places on the Continent may account, to some extent at least, for the unusual declension. The President gave the place of prominence to Geology. Prof. Hobson, in a most able presidential address in the Section of Mathematics and Physics, discussed luminously the scope and tendencies of modern mathematics. In the Economic Science and Statistics Section, Sir Hubert Llewellyn Smith, who presided, gave a timely and informing address on subjects that are urgently claiming more attention. Mr. Crooke, presiding in the Anthropological Section, set forth the great advances that have recently been made in Anthropology. In a combined meeting of the Education and Chemistry Sections, Mr. R. Blair, Education Officer of the London County Council, discussed the relation of science to industry and commerce in one of the most important papers of the meeting, which we propose to print in full in other columns. Under Principal Miers the Education Section presented a scene of sustained activity and interest. Dr. Miers's presidential address drove home important principles, some of which we have already discussed; and interesting methods and results of experimental investigation upon the intelligence of children and upon the instruction of children in natural and open-air surroundings were presented. It is impossible for us to do more than make a selection of the points that appear to be of more immediate practical importance.

Though the weighty address of Principal Miers from the chair of the Education Section of the British Association dealt, in the main, with University education, it was introduced by important considerations affecting the pre-

University stages. For example, Dr. Miers touched on the general relations between teachers and their pupils. While noting the paramount importance of the individuality of the teacher and of his personal influence on the pupil, he remarked "that the only permanent personal influence is really wielded by teachers who exercise it through intellectual channels, and that those who acquire intellectual authority will generally succeed in training the characters as well as the minds of their pupils." This seems the safest practical basis for the training in character that is so much desiderated nowadays. Another point deserves special attention. That is the distinction between the methods proper to earlier and to more advanced teaching. Naturally, of course, teachers of any intelligence feel the difference and endeavour to accommodate themselves to the varying circumstances; but Dr. Miers does well to lay particular stress upon the point. He said:

Whatever may be the right methods of teaching children of ten and young men and women of twenty, many of our failures are due to one or both of two prevalent mistakes—the first, the mistake of teaching children by methods that are too advanced; the second, that of teaching University students by methods that are better adapted for school children.

This is a dictum that is to be laid to heart. We have on former occasions insisted on a similar consideration—the teaching of the right subjects, or the right elements of subjects, at the appropriate psychological times. These matters are intimately connected with the necessity of training for all teachers.

It is, of course, hopeful that a diploma in pedagogy, or some evidence that they have received instruction in method, is now generally required of those who are to become teachers in schools. It seems to me, however, somewhat curious that, while efforts are now being made to give instruction in educational method to such persons, no similar effort is made to give instruction in more advanced methods to those who are called upon at the close of their undergraduate career to become University teachers, and that in consequence many of them have no method at all.

With its issue of September 6 the *Times* presented to its readers an "Educational Supplement"—the first of a series that we hope will be long and frequent. It consists of three leading articles, eight special articles, and eight "reviews and correspondence."

These articles include a general survey of "The Educational Outlook" by one of our leading authorities, an article on "New Universities and New Schools" by one who has had practical experience of both the old and the new, an article on "Public Schools" by a teacher whose many years' service devoted to one of them has not blinded him to their weaknesses, and an article on "The New Secondary Education" by a scholar whose record entitles him to point the moral.

Altogether the articles cover a large space of the general field, and they cannot fail to be instructive, whether one agree with them in detail or not. The appearance of this special sheet is a speaking testimony to the keen interest in the questions grouped under the wide heading of Education.

Never before [says the second leader] was there so much talk about education as now: not even in the days when "Émile" had just appeared, and every one with pretension to culture or intelligence had his ideas about Rousseau's teaching. Never, we believe, was there a greater desire to get behind words and forms and traditions and dogmas to the central truth about education, to see what it can do and what it cannot; to find out the special needs of this generation, and to try to provide for them.

It may confidently be anticipated that there will be still more talk about education, and still greater effort to get at the roots of the various questions involved and to accommodate the educational organization to the special needs of the time. We therefore welcome the fresh aid that the *Times* brings to the discussion and the solution of the problems that have been forced to the front by the new energy of teachers and other educationists.

"Technical and professional education may do much for a community." Yes; but one has only to read the discussions at the Sheffield meeting of the British Association to see how much yet remains to be done before this community is adequately provided with technical and professional education. But, even if adequate provision for these things were made, there is a wider and more fundamental claim: "We are all more or less conscious that other things underlie these, and that the best which we have may not endure unless they rest upon a national education wisely conceived."

In the main, what is needed is the forming and strengthening of character; the ensuring that there is something stable upon which life may be built; training the intellect to see things as they are, the will to be active and strong, the emotions to be subject to control.

There is profound truth in this; but the vagueness of it is somewhat disconcerting. How should we proceed to frame an examination paper that would test the results of the teacher's labours? There is, indeed, just a suspicion of cant in the common talk about the formation and strengthening of "character." Of course, the requirement is universally admitted; but surely it is incidental to the work of every teacher to mould character, and the teacher's efforts are but too often and too heavily hampered by influences external to the schoolroom. However, there is no harm in reminding teachers of a duty of which they are well aware; only it is open to them to retort that they are not the only members of the community charged with that same duty.

A strong race, it will be agreed, should consist of men and women who are masters of their inner selves; who are not at the mercy of infectious emotions; who are not hysterical; who take their sorrows with a certain gravity or stolidity, and their joys as folk of good breeding. Is this generation trained to guard against susceptibility to periodical indulgence in debauches of uncontrolled feeling?

Here we approach difficult ground. Let us have a strong race, certainly. But, again, the school is not the only arena of training; and it needs but a very brief retrospect to exemplify the influence of, say, newspapers in the sphere of "infectious emotions" and "debauches of uncontrolled feeling." It seems to emerge, then, that education is a term of varying extension, and that teachers may well claim that mentors outside the school should take home to themselves also the precepts they are good enough to lay down for the conduct of those that are formally charged with the training of the young. There is really a joint responsibility, and it is not the teachers that are aptest to forget that very important fact.

In our last number we mentioned that a translation of a Syllabus of Mathematics drawn up for the Austrian Gymnasien had just been issued by the Board of Education (*Educational Pamphlets.* No. 22. 2d. Wyman). To those familiar with the various stages in the evolution of mathematical teaching, the interest of the Syllabus lies in its complete permeation with the new spirit. An eight years' course is mapped out, and suggestions are given for its treatment in the Lower, Intermediate, and Upper Stages.

Its aim is briefly indicated in the concluding summary of the objects underlying the programme. These are:—

(1) Adaptation of material and methods to the intellectual development of the pupil at the moment.

(2) Simplification of the progress of study by the closer connexion between studies essentially related, especially between algebra and geometry.

(3) Universal correlation of the mathematical subject-matter with other branches of instruction on which it happens to bear, and with practical applications in actual life.

(4) Grasp of functional relation, at first in each special case as it occurs in the mathematical instruction; and, towards the conclusion of the course, a grasp of the idea of functionality, including the measurement of the change of a function by the differential coefficient.

(5) Cultivation of the power of thinking in three dimensions, supported by incidental handwork on the part of the pupil (making of drawings, models, &c.).

(6) Discarding matter which is out of date or recognized as didactically unprofitable.

When we wrote last month on the fatuous suggestion of the provision of a training college for the teaching of Indian customs and ways of thought to competition-wallahs, we said, with deliberate reserve, that "there is reason to doubt whether there are not other occasions of offence proceeding from other causes" than ignorance of such customs and ways of thought. Since then, the special correspondent of the *Times* in India, who cannot be accused of being pro-Indian, has dealt with the subject in his thirty-fourth article on "Indian Unrest" (September 12). He writes:

On the whole, the relations between the lower classes of Europeans and natives in the large cities, where they practically alone come into contact, seldom give rise to serious trouble; and it is between Europeans and natives of the higher classes that unfortunately personal disputes from time to time occur, which unquestionably produce a great deal of bad blood—disputes in which Englishmen have forgotten not only the most elementary rules of decent behaviour, but the self-respect which our position in India makes it doubly obligatory on every Englishman to observe in his dealings with Indians.

The marked difference between "the lower classes" and "the higher classes" is sufficiently significant; and the description of the disputes of "the higher classes" does not require comment. The writer mentions palliations—the strain of railway journeys (where most of such disputes are said to take place) on the temper, English ignorance of native customs, occasional unpleasant habits of even high-class Indians; but, after all, he says this:

Nevertheless, it must be admitted that cases of brutality towards natives have occurred sufficiently gross and inexcusable to create a very deplorable impression. I have met educated Indians who, though they have had no unpleasant experiences of the kind themselves, prefer to avoid entering a railway carriage occupied by Europeans lest they should expose themselves even to the chance of insulting treatment.

About the truthfulness of this statement there can be no manner of doubt; and the practical implications are deplorable. "It is a lamentable fact also," says the writer, "that, amongst Indians, the greatest bitterness with regard to the social relations between the two races often proceeds from those who have been educated in England." Naturally. In England they are treated as equals; when they go back to India they are treated—otherwise. Yet here is a significant paradox: "The common instincts and the common dangers of their profession create often singularly strong ties of regard and affection between the sepoy of all ranks and his British officers—especially on campaign." Certainly; but never except when the British officer has treated the sepoy as "a man and a brother." It is no case for a training college: what is wanted is simply the most elementary common humanity.

SUMMARY OF THE MONTH.

The first education resolution submitted at the Trades Union Congress at Sheffield (September 16) was as follows:—

This Congress is of opinion that, from the age of sixteen to eighteen years, classes should be provided during the day-time to enable students to learn thoroughly the theoretical and practical sides of their work, and that employers should be compelled to allow their employees the necessary time off to attend such classes.

The mover, Mr. H. H. Elvin (Clerks' National Union), stated that there were no fewer than ten thousand children under fourteen years of age working underground at the present time, and there were fifty thousand half-timers. In consequence of these two disgusting facts, the youth of the country was insufficiently educated even to be machines for grinding out profit for the employers. Thus it was that every continuation school was necessary, but, as boys had to work long hours during the day-time, it was a shame for them to have to attend evening schools, and facilities should be given for them to attend day classes at the employers' expense. The motion was seconded by Mr. A. E. Chandler (Railway Clerks) and carried.

The question as to whether public education should or should not be secular was dealt with in two resolutions—the first, submitted on behalf of those who favour religious education, and the second declaring emphatically for the secular principle. Mr. J. O'Grady, M.P., moved the first as follows:—

That a ballot of members be taken of all societies affiliated to the Trade Union Congress, as to the retention in the trade union programme of the secular education policy, or its deletion from same.

He said he regretted the necessity which compelled him to move this resolution and, frankly, he did not like it, but the circumstances were such that his society (furnishing trades) felt induced to test the feeling of the Trade Union movement upon it. Mr. J. Sexton (Dockers) seconded. He said Congress did not want war or victory, but peace, so that they could do work for the unemployed and sweated and other workers who were downtrodden. The resolution was lost on a card vote by 725,000 to 666,000.

Then came the following resolution in favour of secular education:—

This Congress urges the Parliamentary Committee to continue their efforts to secure Parliamentary and muncipal recognition of the trade union education policy, which demands a national system of education under full popular control, free and secular from the primary school to the University.

On behalf of the Parliamentary Committee, Mr. D. J. Shackleton, M.P., suggested that Congress should merely decide the principle. No one was pledged to pay for it until the scheme was produced and passed. By the seemingly unanimous consent of the delegates, the resolution was carried amidst a storm of "Agreed, agreed!" It was agreed also that the Parliamentary Committee should propound a scheme.

The second session of the tutorial classes organized by the Joint Committee for the Promotion of the Higher Education of Working People was opened at the University of London (September 17). Dr. Miers (Principal of the University) presided, and there were on the platform Miss J. P. Madams (Co-operative Union), Dr. Roberts (Registrar of the University Extension Board of the University), Dr. Walmsley (Principal of the Northampton Polytechnic Institute and Chairman of the University Extension Board), and Mr. Wynn Thomas (one of the Hon. Secretaries of the Joint Committee). There were about three hundred and fifty students present. Dr. Miers, after welcoming the students, spoke of the rapid growth of the tutorial class movement. He said that last year there were only five such classes connected with the University as against thirteen for the coming session, London now having more classes than any other University. He suggested that later on they might take up other groups of subjects, the classes being confined at present to the study of sociology, industrial and economic history, and political institutions and political thought. Dr. Walmsley hoped that this would be an Imperial, and not merely a national, movement; and Miss Madams said that the new educational movement, of which those classes were an important part, meant that

we needed education that we might be fitted for service. Dr. Roberts dwelt on the importance of the fortnightly essays, which were a valuable feature of these classes.

What is the position in Wales to-day (asks Mr. W. J. Evans, of the County School, Abergele, at the Cymmrodorion meeting held in connexion with the National Eisteddfod at Colwyn Bay)? We have ninety-six intermediate schools, with nearly fourteen thousand pupils, whose education costs well over £200,000 a year. On all sides we are faced with complaints that parents do not know what to do with their children after they have received a secondary education. Men in public life, and members of Parliament in particular, have brought to their attention young people who have attained their degrees or achieved success in their schools, and who yet do not know how to secure suitable employment in life. Thus one of the greatest and most difficult problems in Wales to-day is that of securing employment after education. It is a common complaint that too many of the boys educated in the county schools become teachers and preachers to the exclusion of other professions and occupations. If these two callings, with all the unsatisfactory conditions attached to them, form the only natural avenues of employment for the best products of our county schools and University colleges, it is evident some immediate steps should be taken to find other more productive openings for the purpose of utilizing, for the benefit of the community at large, the immense amount of raw material which is at present being largely wasted.

Sir John Struthers's report on secondary education in Scotland for the year 1910 (says the *Scotsman*) is an unusually interesting document. It envisages practically all the problems of the day—and they are not few—describes, criticizes, and suggests. It is distinctly temperate in tone, but probably those who wish to do so will detect beneath the studiously guarded and moderate phrasing the firmness of purpose which is generally associated with the decrees of the Scottish Education Department. A few years ago higher grade schools were being multiplied all over Scotland almost as fast as the Department could recognize them. The trend of events within the last year or two has, however, been distinctly away from any such ideal, and, on the change of nomenclature to "intermediate" and "secondary," schools with ambitions have found it increasingly difficult to get recognition from the Department. Sir John Struthers's report for this year bears additional evidence of the direction in which the Department's policy is now tending. He hails with satisfaction the decrease in the number of schools sending up candidates for the Intermediate Certificate, and expresses the opinion that the number might with advantage be still further reduced. It is becoming increasingly evident, he says, that in some cases managers have asked for recognition without a full understanding of the responsibilities involved. An extra room and the addition of one or two more teachers will not, he implies, meet the Department's standard, and, where the full equipment cannot be provided, a makeshift should not be attempted. This pronouncement may cause some disquiet and discontent in country districts, foreshadowing, as it seems to do, the ultimate withdrawal of local facilities in such districts for higher instruction. But of its administrative soundness there can be no doubt. The policy of concentration is, as Sir John Struthers says, "the policy of efficiency and economy," and the only objection to which the plan is open is met in advance by the existence of "bursaries" to assist poor students in travelling to centres of higher instruction. At least £85,000 was spent last year upon this object alone, says the report, and, if to that be added a total of £65,000 derived annually from endowments for the same purpose, there seems to exist already a fund "ample for the utmost that could be required." Further developments of this conception will be awaited with interest. It seems to promise some much-needed financial relief and a saner conception of the limits of State interest in secondary education. Of the results of last year's work the report speaks with almost unqualified approval.

Speaking at a Conference of Journalists held at Oxford (September 16), Mr. A. G. Gardiner, editor of the *Daily News*, said journalism was the one profession that applied no formal tests to its candidates. Its nature (he believed) was fundamentally opposed to the application of such tests. But this was far from saying that the Universities could do nothing for journalism. They had done much in the past. They were largely responsible for that high standard of culture, responsibility, and knowledge which they were accustomed to claim for the English press, and now that the press had become purely democratic—had ceased, that was, to be the organ of the middle classes and had become the possession of the masses—they needed the codes and the traditions of the Universities more than ever to help them to preserve the old decencies of their profession. What they wanted from the Universities was the best that the Universities had to give. We should be foolish, he thought, to attempt to lay down special requirements or to ask for specific tests to be applied to those who wish to graduate in journalism. Nor could they ask the Universities to undertake that technical training which could only be thoroughly acquired in a newspaper office and which was quickly achieved by a trained and well equipped mind. But it would be proper, he thought, to say that the more the Universities widened, modernized, and humanized their culture the more would they benefit journalism, and through journalism the whole range of national life. Finally, he would like to suggest that the English Universities should give more definite encouragement to men to take up journalism. The Scottish Universities would seem to give that encouragement. That was one reason why Scotsmen had so large a place in journalism.

A congress—the First Universal Races Congress—is being organized to discuss the general relations subsisting between the peoples of the West and those of the East, with a view to encouraging between them a fuller understanding, friendlier feelings, and a heartier co-operation. Arrangements are completed for China, Japan, India, Turkey, Persia, Egypt, and the negro races in America and Africa, to be represented by eminent speakers of their own kith and kin. The list of writers of papers is long and imposing. No less than a dozen Governors of British colonies, eight British Prime Ministers, and over forty colonial bishops are on the list of sympathizers, which also includes nearly thirty Presidents of Parliament, 130 professors of international law, and the majority of the members of the Hague Court and of the Second Hague Conference. Lord Weardale is the president; the Hon. W. Pember Reeves, the chairman of the Executive; and Mr. Gustav Spiller (63 South Hill Park, Hampstead, N.W.), general secretary. The date of meeting is July 26 to 29, 1911; the place, the University of London.

Englishmen would receive a shock (says the *Birmingham Evening Dispatch*) if they read that a Master of Balliol or Trinity had been appointed head of a Stock and Bond Commission. We have not heard that America is even surprised at the selection of the President of Yale University, Prof. Arthur T. Hadley, to guide the Stock and Bond Commission which is to investigate the question of bringing further issues of railroad securities under the supervision and control of the Inter-State Commerce Commission. The President of an American University is almost bound to have a head for finance. His position demands a capacity for supervising the sometimes complicated finances of his charge. Prof. Hadley, moreover, has delivered many courses of lectures on such subjects as political economy and railroad administration. He has also helped to edit the *Railroad Gazette* of New York, and transportation and labour problems are among his darling subjects. His career, in fact, seems in every way reassuring to those who entertain suspicions of the business aptitude of "dons of Universities on Isis or on Cam." Granting that absorption in political economy suggests idealism—as to many it does—an interest in railways is a most comforting assurance.

In the village of Welton, near Lincoln, a memorial cross, placed over the grave of Dr. Richard Smith, a physician, who died at Welton in 1602, has been unveiled. Dr. Smith, by a codicil to his will, bequeathed the lordship of Potterhanworthe, in Lincolnshire, for the establishment of a hospital or almshouse and the maintenance of twelve poor children, who were to be lodged, fed, clothed, and educated until they reached the age of fourteen or fifteen years, when each was to be apprenticed to a trade with a premium of £16. The building was known as Christ's Hospital, Lincoln. As the land bequeathed increased in value the establishment grew until accommodation was provided for more than a hundred scholars. The income from the original gift and other bequests, which have become merged into a common fund, is now devoted chiefly to the provision of scholarships in the

grammar school and at the Universities for children from the elementary schools. The memorial was unveiled by Mr. J. L. Wheatley, Town Clerk of Cardiff, and several other "old boys" of the school attended the service.

The University of Toronto (says the *Cambridge Independent Press*) is giving a very courageous lead by electing three ladies to the Senate. There are a number of women students, and it seems a common-sense step to take to give women graduates a share in the management of affairs. It will be a long time, no doubt, before this example will be followed by the older Universities; but the time is, undoubtedly, coming, and it seems appreciably nearer when we hear of the action of Toronto.

The jurors at the Brussels Exhibition have awarded nineteen Grands Prix to British exhibitors in the classes concerned with books and their production—printing, paper, and binding—and of these the Oxford University Press has obtained no fewer than seven. No other exhibitor obtained more than one Grand Prix in these classes. The Oxford University Press has repeated the success gained at the Paris Exhibition (when three Grands Prix were awarded) in being the only British binding house to obtain the highest possible distinction.

Dr. Hermann Wilhelm Breymann, Professor of Romance Philology in the University of Munich, has died in his sixty-eighth year. For several years he was Professor of French at Owens College, Manchester; and Victoria University conferred on him the honorary degree of LL.D. In 1875 he became Professor of Romance and English Philology at Munich, but on the foundation of a separate chair of English Philology he elected to keep the department of the Romance Languages. He wrote much on the teaching of modern languages and on philological, especially Romance, subjects generally.

The Belfast University Commissioners have decided to establish a faculty of commerce within the University, to consist of the professors and lecturers in the subjects of the faculty. In addition, an advisory Committee will be established including representatives of the Chamber of Commerce, the Corporation, the Library and Technical Instruction Committee, the Harbour Commissioners, the Linen Merchants' Association, the Institute of Bankers in Ireland, the Society of Chartered Accountants, and the Northern Law Society. It is proposed to grant a degree in the faculty to matriculated students who have pursued prescribed courses of study for at least three years, and who have satisfied the examiners in certain subjects. To meet the case of students unable to devote to these subjects the time necessary for the acquisition of a degree, a diploma in commerce, or a diploma in social science will be granted after a two-years' course and the passing of the prescribed examinations. In framing the curriculum the needs of three classes of students have been borne in mind: those who are or expect to be engaged in business; those who are preparing for the administrative work of the State or the municipality; and those who contemplate social or philanthropic work.

THE EDUCATIONAL LADDER.

Bristol: Merchant Venturers' Technical College. — Research Scholarship, £50 for one year (Engineering): H. H. Emsley, B.Sc., Bristol.

Oxford: Cherwell Hall.—Scholarships: Janet W. McCurrach, M.A. St. Andrews, Hons. Modern Languages; Annie E. McCurrach, M.A. St. Andrews, Hons. Modern Languages; Madeline M. Daws, B.A., Hons. Sidney University, Gold Medal; Sara J. Lawson, M.A. Edinburgh, Hons. Modern Languages; Annie T. Riddell, M.A. Glasgow, Hons. Modern Languages; C. C. Robertson, M.A. Edinburgh, Hons. English; Marion S. Orr, M.A. Glasgow, Hons. Modern Languages; M. H. Cunningham, M.A. St. Andrews, Hons. Mathematics; Harriet Bamford, B.A. Belfast, Hons.; Jane Smart, B.A. London; and Marjorie Maynard, B.A. Durham.

London College of Music.—Scholarships: Schubert Scholarship (Singing): Mabel Amelia Mann. Rossini Scholarship (Singing): Reginald G. Lucas. Sullivan Scholarship (Singing): Helene Frank. Beethoven Scholarship (Pianoforte): Hilda Josephine V. Bradley. Spohr Scholarship (Violin): Doris M. Bedford. Bach Scholarship (Organ): Harold C. Pennington. Each scholarship entitles to two years' free training at the College.

THE BRITISH ASSOCIATION AT SHEFFIELD.

A comparison of the proceedings of the British Association at Sheffield in 1879 and in 1910 indicates startlingly the immense strides of science during the past generation. The Presidential Address of Prof. Bonney presented a most interesting and lucid account of "the facts of which we must take account in reconstructing the physical geography of Western Europe, and especially of our own country, during the Age of Ice." He did not, however, feel justified in deciding between rival hypotheses. The discussion will be studied with great interest by experts in the published proceedings. We must confine ourselves to questions more nearly affecting the schools.

MODERN MATHEMATICS.

Prof. Hobson said that "probably no other department of knowledge plays a larger part outside its own narrow domain than Mathematics." After speaking of the definition of this domain, he referred to the Certainty of Mathematics. "The belief," he said, "was very general amongst instructed persons that the truths of mathematics had absolute certainty, or at least that there appertained to them the highest degree of certainty of which the human mind was capable. But in the first place, it was a fact that frequently, and at various times, differences of opinion had existed amongst mathematicians, giving rise to controversies as to the validity of whole lines of reasoning and affecting the results of such reasoning; a considerable amount of difference of opinion of this character existed among mathematicians at the present time. In the second place, the accepted standard of rigour—that was the standard of what was deemed necessary to constitute a valid demonstration—had undergone change in the course of time."

The Standard of Demonstration.

Both in geometry and analysis our standard of what constituted a rigorous demonstration had in the course of the nineteenth century undergone an almost revolutionary change. The oldest text-book of science in the world, "Euclid's Elements of Geometry," had been popularly held for centuries to be the very model of deductive logical demonstration. Criticism had, however, largely invalidated this view. It appeared that, at a large number of points, assumptions not included in the preliminary axioms and postulates were made use of. The fact that these assumptions usually escaped notice was due to their nature and origin. Derived as they were from our spatial intuition, their very self-evidence had allowed them to be ignored, although their truth was not more obvious empirically than that of other assumptions derived from the same source which were included in the axioms and postulates explicitly stated as part of the foundation of Euclid's treatment of the subject. It was not too much to say that no one of the general theorems of analysis was true without the introduction of limitations and conditions which were entirely unknown to the discoverers of those theorems. It had been the task of mathematicians under the lead of such men as Cauchy, Riemann, Weierstrass, and G. Cantor, to carry out the work of reconstruction of mathematical analysis, to render explicit all the limitations of the truth of the general theorems, and to lay down the conditions of validity of the ordinary analytical operations. Physicists and others often maintained that this modern extreme precision amounted to an unnecessary and pedantic purism, because in all practical applications of mathematics only such functions were of importance as excluded the remoter possibilities contemplated by theorists. Such objections left the true mathematician unmoved; to him it was an intolerable defect that, in an order of ideas in which absolute exactitude was the guiding ideal, statements should be made, and processes employed, both of which were subject to unexpressed qualifications, as conditions of their truth or validity.

Methods of Mathematical Discovery.

Whatever view may be held as regards the place of psychological implications in a completed body of mathematical doctrine, in research the psychological factor was of paramount

importance. The slightest acquaintance with the history of mathematics established the fact that discoveries had seldom, or never, been made by purely deductive processes. The results were thrown into a purely deductive form after, and often long after, their discovery. In many cases the purely deductive form, in the full sense was quite modern. The mathematical discoverer divined the results before they were established; he had an intuitive grasp of the general line of a demonstration long before he had filled in the details. A developed theory, or even a demonstration of a single theorem, was no more identical with a mere complex of syllogisms than a melody was identical with the mere sum of the musical notes employed in its composition. There was much room for individuality in the modes of mathematical discovery. Some great mathematicians had employed largely images derived from spatial intuition as a guide to their results; others appeared wholly to have discarded such aids, and were led by a fine feeling for algebraic and other species of mathematical form. A certain tentative process was common, in which, by the aid of results known or obtained in special cases, generalizations were perceived and afterwards established, which took up into themselves all the special cases so employed. Most mathematicians left some traces, in the final presentation of their work, of the scaffolding they had employed in building their edifices; some much more than others. The actual evolution of mathematical theories proceeded by a process of induction strictly analogous to the method of induction employed in building up the physical sciences; observation, comparison, classification, trial, and generalization were essential in both cases. Not only were special results obtained independently of one another, frequently seen to be really included in some generalization, but branches of the subject which had been developed quite independently of one another were sometimes found to have connexions which enabled them to be synthesized in one single body of doctrine. The essential nature of mathematical thought manifested itself in the discernment of fundamental identity in the mathematical aspects of what were superficially very different domains.

The Teaching of Mathematics.

It could not be too strongly insisted that a firm grasp of the principles, as distinct from the mere processes of calculation, was essential if mathematics was to be a tool really useful to the engineer and physicist. There was a danger, which experience had shown to be only too real, that such students might learn to regard mathematics as consisting merely of formulæ and of rules which provided the means of performing the numerical computations necessary for solving certain categories of problems which occurred in the practical sciences. Apart from the deplorable effect on the educational side of degrading mathematics to this level, the practical effect of reducing it to a number of rule-of-thumb processes could only be to make those who learnt it in so unintelligent a manner incapable of applying mathematical methods to any practical problem in which the data differed even slightly from those in the model problems which they had studied. Only a firm grasp of the principles would give the necessary freedom in handling the methods of mathematics required for the various practical problems in the solution of which they were essential.

Sir J. J. Thomson, in moving a vote of thanks for the address, said that he agreed throughout with Prof. Hobson, and in particular that mathematics from the purely logical standpoint should be taught merely to purely mathematical students. Even in Cambridge there was a tendency to bring this side of the subject before the undergraduates too early in their course.

UNIVERSITY EDUCATION.

Principal Miers, in his presidential address in the Educational Section, first considered some general relations between teachers and their pupils, and then proceeded to deal with the change in the method of teaching that should take place when the University career is begun.

The Spirit of Inquiry.

The first question which a University teacher should ask himself was, "Am I rousing a spirit of inquiry in my pupils?" And if this could not be answered in the affirmative it was a confession that the University ideal was not being realized. Some asserted that this principle should also guide school education, but with young children this should be less necessary; they all possessed it, and were by nature inquisitive. The real difference between the inquisitive mind of the child and the inquiring mind of the adult was that the former was yearning for information quite regardless of what it might lead to, whereas the latter must learn or investigate with an object if the interest was to be excited and maintained. It would now be clear that the principle which he was advocating is a very simple one, namely, that the business of direct mental training should be finished at school, and that at the University the trained mind should be given material upon which to do responsible work in the spirit of inquiry. Preparatory school exercises belonged to school life and should be abandoned at the University. All this seemed so obvious that it might appear to be hardly worth saying were it not that the methods which actually prevailed were so far removed from this ideal.

The Need of Research.

It might be asked, In what manner was this change to be introduced, and how was it possible under present conditions, where so many students were all pursuing ordinary degree courses and had no time or opportunity for special work, to provide teachers who could educate them in this spirit, if it was also their duty to get pass students through their examinations? The answer was that in a University the professors and higher teachers should be, without exception, men who, whatever might be their teaching duties, were also actively engaged in investigation. Their assistants should be teachers who, even if the whole or part of their time was occupied in routine teaching, had yet had some experience in, and possessed real sympathy with, modern advanced work under such professors. Any one desirous of qualifying for University teaching should be compelled to devote a certain portion of his student career to research. It was not too much to hope that the majority of those who were endeavouring to qualify for the higher educational posts would be assisted to obtain this special experience during their degree course. Under the present system at most Universities, unless the student had been fortunate enough to come in contact with a teacher imbued with the spirit of research who was carrying on his own investigations, it rarely happened that he had the time or the means which would enable him to obtain any insight into the meaning of investigation before he left to take up teaching work. The need of post-graduate scholarships for this purpose was very widely felt, and was now frequently expressed.

The University and Specialization.

When teachers were always playing a somewhat mechanical part in a systematized course, receiving duly prepared pupils and preparing them again for the next stage, such an atmosphere of preparation was produced that many persons continued to spend the greater part of their lives in preparation without any reasonable prospect of performance. The distinction that he had in mind between University and school teaching might be expressed in this way. At school no subject should be taught to a class as though it were intended to be their life work; to take an example, it too often happened at present, owing really to excessive zeal on the part of school teachers, that mathematics was taught as though each member of the class were destined to become a mathematician; consequently only the few scholars with a real aptitude for mathematics became interested, and the remainder were left behind. On the other hand, at the University each subject should be studied as though it really were the life work both of teacher and student. Thus, to take the same subject as an illustration, the mathematical student would attend the full courses of his professors and would follow them with the interest of a mathematician; whereas for the scientific student it would only be in those branches of mathematics which concerned him that the interest of his special science would put him on terms of equality with the mathematical student. From what he had already said it would be clear that he did not attach much importance to special preparation at school for those who intended to proceed to the University. But when a boy went to the University, school methods should then be

entirely replaced by University methods—not because there was then a natural change in the mental powers of the student, but because it was the obvious stage at which to make the change if they were to abandon preparatory training at all. Should it be proposed that the change ought to be made at sixteen and that after that age something in the nature of University methods should be gradually introduced, his fear was that this would only lead to the perpetuation of school methods at the University.

The Preparation for the University.

An interesting question which deserved to be very seriously considered was the question, What sort of school education afforded the best preparatory training for the University? He had often heard it asserted that, if a boy was capable of taking up at the University a course which was entirely different from his school course, he would generally be found to have come from the classical side and not from the modern side. He was bound to say that this was, on the whole, his own experience. It suggested that a literary education at school was at present a better intellectual training for general University work than a scientific education. If this were so, what was the reason? There were no doubt many cases which might contribute. In some schools the brighter boys were still retained on the classical side. But the facts also pointed to some defects in the present teaching of school science whereby a certain narrowness and rigidity of mind were rendered possible. Another noteworthy defect was the absence of that mental exercise which was provided by the thoughtful use and analysis of language. He believed that the practice of expressing thoughts in carefully chosen words, which formed so large a part of a good literary education, constituted a mental training which could scarcely be surpassed, and it was unfortunately true that in the non-literary subjects too little attention was paid to this practice. Of all the subjects which children were taught at school there was none in which such poor results were achieved as English. Much would be gained if boys and girls were constantly required to express their own meaning in writing. What was required was constant, with certain periods of conscious, practice, and that was only to be obtained by making every piece of school work in which the English language was used an exercise in lucid expression.

The Great Defect of Universities.

The acquisition of knowledge and the training of the mind were two inseparable aims of education, and yet it often appeared difficult to provide adequately for the one without neglecting the other. And so they got the battle of syllabus, time-table, scholarships, examinations, professional training, technical instruction, under all of which lay the disturbing distinction between training and knowledge. But, if they inquired further into these matters, he thought they would find that the fundamental question was to a large extent one of responsibility. Left to himself, a boy or a man would acquire a knowledge of the things which interested him, even though they were only the arts of a pickpocket, and would obtain a training from experience such as no school or college could give. Now it was of the essence of responsibility that there should be something sudden and unexpected about it. It was because he felt that this sudden entrance into an environment of new responsibility was so necessary that he would regard with suspicion any attempt to provide a gradual transition between school and University methods. The entry of the University should be the moment of which Emerson said—"There is a time in every man's education when he arrives at the conviction that he must take himself for better or worse as his portion; that, though the wide universe is full of good, no kernel of nourishing corn can come to him but through his toil bestowed on that plot of ground which is given him to till. The power which resides in him is new in Nature, and none but he knows what that is which he can do, nor does he know until he has tried." Let them visit the Universities at the present moment, and, in spite of all the admirable investigation which was being carried on, they would find the majority of students engaged in exercises in which they felt no responsibility whatever. In his opinion this indicated that for them the spirit of true University education had never been awakened.

MENTAL AND PHYSICAL FACTORS IN EDUCATION.

At a joint meeting of the Educationists and the Anthropologists there was presented the report of a Committee appointed to inquire into the methods and results of research into the mental and physical factors involved in education. It stated that until the present time, although much had been written upon educational theory and educational procedure, there had been little or no attempt to deal with its materials in a scientific spirit. The study of the persons to be educated and their attitude towards methods of instruction was left aside: it was sufficient to rely on the sympathetic intuitions of the schoolmaster. The position was unassailable so long as mental behaviour was regarded as something lying beyond the reach of exact objective methods of inquiry. The psychologist and the alienist, however, had taught us that this was not the case. In response to the request of the Committee various investigators in this field had expressed their views of the importance of the work. Prof. Binet, of the Sorbonne, stated that teachers "should have at command the means of recognizing intellectual and moral types amongst children; means of measuring memory and of strengthening it; they should know how to estimate fatigue and how to counteract it. . . . It is therefore necessary for psychologists and teachers to set themselves to the task of creating a science, 'psycho-pedagogy.'"

In view of the large amount of work being done in other countries the Committee set out to inquire what was actually being done here. Their inquiry showed that special funds were rarely available; such work as was being done was chiefly in the hands of students who were working in the first place for academic recognition. Here and there privately interested people were working on their own initiative and at their own expense; otherwise inquiries were being for the most part conducted in the available time of University teachers, who were already occupied with the general direction of a laboratory or in doing other teaching work. A considerable amount of work was being done in almost all the directions in which out-of-school research could help to solve the teacher's problems—the psychologist in particular was busy with investigations which concerned the process of instruction very intimately. Although they might expect to gain much by a study of the results of laboratory work, it was, in the Committee's view, quite likely that the gain to educational science would come as much from a study of the methods of the laboratory worker as from his achievements. In any case, those results would have to be selected and adapted to the special needs of the teacher and to the actual conditions of classroom work before they could be incorporated into any systematic body of doctrine which would in the future stand for the science of education. But classroom investigations that would bring results of any permanent value must be conducted with as near an approach to the rigours of exact science as the conditions would allow. It was in the hope of its producing a body of teacher-workers, capable of conducting investigations of that kind, that the present tendency to give to the teaching of psychology a more practical and experimental basis should, in the Committee's view, be welcomed. So much was being accomplished in Europe and America that the national honour seemed almost at stake. When might they hope to see such an institution as Teachers' College in our country—a great institution devoted to advanced pedagogical study and research? At least, in the view of the Committee, the subject should be regarded as ranking with medicine and other University studies in this respect, and as needing the same financial support for purposes of research as other departments of knowledge. The needs of departments of Education in Universities were apt to be overlooked by the Treasury, which considered them already provided for from other funds, but grants from the Board of Education at present covered tuition fees only; they took no account whatever of the need for research.

Prof. J. A. Green, of Sheffield University, the Committee's Secretary, and Prof. J. J. Findlay, of Manchester University, in presenting the report, dwelt on the short-sighted niggardliness of our authorities, who failed to support inquiries into the fundamental questions affecting education.

Principal Miers, from the chair, declared our lack of research in this matter to be perfectly disgraceful.

COLLEGE OF PRECEPTORS CERTIFICATE EXAMINATIONS.—JULY, 1910.

LIST OF SUCCESSFUL CANDIDATES AT COLONIAL AND FOREIGN CENTRES.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic.	*ch.* = Chemistry.	*f.* = French.	*h.* = History.	*mu.* = Music.
al. = Algebra.	*d.* = Drawing.	*ge.* = German.	*l.* = Latin.	*s.* = Scripture.
bk. = Book-keeping.	*e.* = English.	*gm.* = Geometry.	*m* = Mechanics.	

The small figures [1] *and* [2] *prefixed to names in the Second and Third Class Lists denote that the Candidates were entered for the First and Second Classes respectively.*

In the addresses, Coll. = College, Coll. S. = Collegiate School, Conv. = Convent, Inter. = Intermediate, S. = School, Sec. = Secondary.

[Bracketing of names denotes equality.]

BOYS.

FIRST CLASS [OR SENIOR].—HONOURS DIVISION.

Sandiford, S. *e.m.* — St. Joseph's Inter. S., Georgetown, B. Guiana

FIRST CLASS [OR SENIOR].—PASS DIVISION.

Kelly, H.N. — Queen's Coll., Nassau
Pritchard, A.P. — Queen's Coll., Nassau

SECOND CLASS [OR JUNIOR].—HONOURS DIVISION.

Jayewardene, P.A.M. *a.al.ch.* — Private tuition
Perera, C.O. *d.* — Private tuition
Ross, V.E. *s.* — Private tuition
de Silva, A.H.D.R. *ch.* — Central Coll., Colombo
AbdulCader, M.R.M. *ch.* — Central Coll., Colombo
Bloison, L. *s.mu.* — St. Joseph's Inter. S., Georgetown, B. Guiana
Abeysekera, W.B.M. *a.al.* — Private tuition

SECOND CLASS [OR JUNIOR].—PASS DIVISION.

Balasingam, S. — Private tuition
[1]Wilkinson, E.L. — Comenius S., Georgetown, Demerara
[1]Buckmann, J. — Mfantsipim S., Cape Coast Castle
Austin, H.L. — Lorenz Tutory, Colombo
Ariyanayagam, V.H. — Private tuition
Mendis, J.V. *d.* — Central Coll., Colombo
Lightbourn, C.H. *s.* — Queen's Coll., Nassau
Diually, W.D. — Private tuition
[1]Crane, A.V. — Private tuition
Johnson, J.S. *d.* — Queen's Coll., Nassau
Lynch, G.N. — St. Joseph's Inter. S., Georgetown, B. Guiana
Ryllie, V.L.V. — St. Joseph's Inter. S., Georgetown, B. Guiana
De Silva, W.L. *ch.* — Private tuition
Pedris, J. — City Coll., Colombo
Lammert, G.E. — Wei-hai-wei School
Mack, P.D.A. — Lorenz Tutory, Colombo
Meugens, J.H. — Wei-hai-wei School
Perera, S.S. — Central Coll., Colombo
Rae, D.C. — Queen's Coll., Nassau
OnPe, S.H. — Private tuition
Nicholson, W.G. *bk.* — Private tuition
Millavitia, C.E. — Lorenz Tutory, Colombo
Selby, E.D. — Mfantsipim S., Cape Coast Castle
Odoom, J.A. — Mfantsipim S., Cape Coast Castle
Williamsz, S.F. — Lorenz Tutory, Colombo
Johnson, C.H. — St. Joseph's Inter. S., Georgetown, B. Guiana
Maynard, A.E. — Comenius S., Georgetown, Demerara
Goliah, E.I. — Private tuition
Dingwall, H.J.A. — Comenius S., Georgetown, Demerara
Sagoe, G.A. — Mfantsipim S., Cape Coast Castle
Jayawardena, D.G. — Private tuition
[1]King, J.H. — Private tuition
VanDort, C.O. — Lorenz Tutory, Colombo
Mathavarayer, R. — Lorenz Tutory, Colombo
Haugakoon, D.S. — Private tuition
Moung Ni — Central Coll., Colombo
Sears, G.J. — Queen's Coll., Nassau
Perera, J.F.V. — Central Coll., Colombo
Solomons, C.A. — Private tuition
Lewis, R.A.K. — Private tuition
de Silva, C.J.C. — Central Coll., Colombo
Beaton, G. — St. Joseph's Inter. S., Georgetown, B. Guiana
Misso, L.A. — Lorenz Tutory, Colombo
Wason, D.C. — The Middle S., Georgetown, B. Guiana
de Mel, D. — Central Coll., Colombo

THIRD CLASS.—HONOURS DIVISION.

Dening, M.E. *e.ge.l.* — Wei-hai-wei School
Roche, J. *h.a.ge.* — Wei-hai-wei School
Erskine, K.F. *a.al.gm.d.* — Wei-hai-wei School
Thompson, C.S. *h.a.al.* — Queen's Coll., Nassau
Curry, O.H. *h.a.* — Queen's Coll., Nassau

THIRD CLASS.—PASS DIVISION.

[2]Christiani, J.L. — St. Joseph's Inter. S., Georgetown, B. Guiana
[2]Macpherson, C.A. — Private tuition
[2]Goonawardene, S.D. — Private tuition
Welch, R.H. *e.a.al.* — The Second Grade S., Georgetown, B. Guiana
Mathias, B.V. *e.* — St. Joseph's Inter. S., Georgetown, B. Guiana
Rodrigues, C.I. *e.h.a.* — St. Joseph's Inter. S., Georgetown, B. Guiana
Ellis, S.S. *a.* — Mfantsipim S., Cape Coast Castle
[2]Fung-Kee-Fung, M. — The Middle S., Georgetown, B. Guiana
[2]Persand, W.W. — Private tuition
[2]Mooksang, J. — Private tuition
Narain, J.T. *a.* — Comenius S., Georgetown, Demerara
[2]Chubb, E.E. — Private tuition
Mensah, A.H. *ge.* — Mfantsipim S., Cape Coast Castle
Davis, B.C. *al.* — Mfantsipim S., Cape Coast Castle
Johnson, W.E. — Mfantsipim S., Cape Coast Castle
Markiu, B.A. *a.* — Mfantsipim S., Cape Coast Castle
[2]Franklyn, M. — St. Joseph's Inter. S., Georgetown, B. Guiana
[2]Ocran, D. — Mfantsipim S., Cape Coast Castle
Richardson, E.W. — Mfantsipim S., Cape Coast Castle
Curry, A.R. — Queen's Coll., Nassau
Remington, A.N. — St. Joseph's Inter. S., Georgetown, B. Guiana
Sealy, C.E. — The Middle S., Georgetown, B. Guiana
Ashhurst, L.N. *a.* — The Middle S., Georgetown, B. Guiana
Grant, F.C. — Mfantsipim S., Cape Coast Castle
Ashun, R. — Mfantsipim S., Cape Coast Castle
Gould, J.W.D. *a.* — Wei-hai-wei School
[2]Craig, E.A. — Private tuition
[2]Johnson, S.F. — Private tuition
Lammert, R.D. *a.* — Wei-hai-wei School
Sey, A. *al.* — Mfantsipim S., Cape Coast Castle
Arkaah, J.K. *a.al.* — Mfantsipim S., Cape Coast Castle
Minnow, J.L. — Mfantsipim S., Cape Coast Castle
Stapleton, W.H. — Wei-hai-wei School
Tipp, G.F. *d.* — Wei-hai-wei School
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Cummings, S.A. — St. Joseph's Inter. S., Georgetown, B. Guiana
[2]Koo, J.T. — The Second Grade S., Georgetown, B. Guiana
St. Hill, S.O. — St. Joseph's Inter. S., Georgetown, B. Guiana
Halm, A.G. — Mfantsipim S., Cape Coast Castle
Noonoo, R.B. — Mfantsipim S., Cape Coast Castle
[2]Thompson, J.J. — Mfantsipim S., Cape Coast Castle
Cumings, J.O. — Comenius S., Georgetown, Demerara
Quaigyah, E.M. — Mfantsipim S., Cape Coast Castle
[2]Delwita, P.B. — Private tuition
Hinds, C.A. — The Middle S., Georgetown, B. Guiana
[2]Essien, A. — Mfantsipim S., Cape Coast Castle
Jones, S.A. — The Second Grade S., Georgetown, B. Guiana
Ouckama, C.A. — Private tuition
Ross, H.L. — St. Joseph's Inter. S., Georgetown, B. Guiana
Vandyck, J.C. — Mfantsipim S., Cape Coast Castle
Amoury, E. — Queen's Coll., Nassau
Korsah, R.M. — Mfantsipim S., Cape Coast Castle
Morris, H. — Private tuition
[2]Skues, T.McK. — Mfantsipim S., Cape Coast Castle
Bertram, A. — Wei-hai-wei School
Robertson, F. — The Middle S., Georgetown, B. Guiana
Farmer, F.E.L. — St. Joseph's Inter. S., Georgetown, B. Guiana
[2]Jayawardane, V.J.M. — Private tuition

GIRLS.

FIRST CLASS [OR SENIOR].—PASS DIVISION.

Johnson, H.M. *s.* — Queen's Coll., Nassau

SECOND CLASS [OR JUNIOR].—PASS DIVISION.

Thompson, D.A. *s.* — Queen's Coll., Nassau
[1]de Weever, I. — St. Joseph's Inter. S., Georgetown, B. Guiana
Farnum, L.M.A. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Juta, E.L. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Christiani, E.G. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Whyte, A.M.J. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana

THIRD CLASS.—PASS DIVISION.

Cunha, E.S. *f.* — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Husbands, I. *a.* — Ursuline Conv., Georgetown, Demerara
Gomes, O. *e.* — Ursuline Conv., Georgetown, Demerara
Pritchard, C.L. *al.* — Queen's Coll., Nassau
Kranenburg, J.A. *a.* — Private tuition
Hunte, M.B. — Private tuition
Jones, M. — Ursuline Conv., Georgetown, Demerara
Martin, M.V. *a.* — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Gambliu, D.M. — Queen's Coll., Nassau
Osborne, C.E. *a.* — Private tuition
Sampson, M. — Ursuline Conv., Georgetown, Demerara
Craig, M. — Ursuline Conv., Georgetown, Demerara
Bowe, McN. — Queen's Coll., Nassau
De Mattos, V. — Ursuline Conv., Georgetown, Demerara
Minns, I. — Queen's Coll., Nassau

LOWER FORMS EXAMINATION.—PASS LIST.

BOYS.

Abbott, G.C. — Queen's Coll., Nassau
Adamson, J.A. — Private tuition
Allen, FitzG. — Private tuition
Alves, G.E. — The Middle S., Georgetown, B. Guiana
Atkinson, C.M. — Private tuition
Cheekes, L.I. — St. Joseph's Inter. S., Georgetown, B. Guiana
Christie, C.F. — Queen's Coll., Nassau
Combermack, R.M. — The Middle S., Georgetown, B. Guiana
D'Abreu, N.E. — The Middle S., Georgetown, B. Guiana
de Beriguy, C.E. — Wei-hai-wei School
de Freitas, O. — St. Stanislaus' Coll., Georgetown, B. Guiana
Dodson, J.H. — The Middle S., Georgetown, B. Guiana
Emanuel, R.A.L. — Private tuition
Forrester, J.McD. — The Middle S., Georgetown, B. Guiana
Fryer, A.H. — Private tuition
Garratt, P.E. — St. Joseph's Inter. S., Georgetown, B. Guiana
Goon Saibo, S.H. — Central Coll., Colombo
Haynes, J.A.C. — The Middle S., Georgetown, B. Guiana
Hebert, J. — Comenius S., Georgetown, Demerara
Ho-A-Lim, P. — The Second Grade S., Georgetown, B. Guiana
Judah, J.E. — Wei-hai-wei School
Kerry, F.M. — The Middle S., Georgetown, B. Guiana
Lee, H. — The Second Grade S., Georgetown, B. Guiana
Lello, A.B. — Wei-hai-wei School
Lewis, R.H.L. — The Middle S., Georgetown, B. Guiana
London, J.A.W. — The Middle S., Georgetown, B. Guiana
Lorenzen, T.L. — Wei-hai-wei School
Martin, J.O.L. — Wei-hai-wei School
McTurk, E. — Miss King's S., Georgetown, B. Guiana
Medas, G.F. — The Middle S., Georgetown, B. Guiana
Nicholas, A.C. — The Middle S., Georgetown, B. Guiana
Nielsen, C.G.F. — Wei-hai-wei School
Pierre, D.E. — Private tuition
Raggobeer, B. — Comenius S., Georgetown, Demerara
Sinathamby Pitcharather, M.S. — Central Coll., Colombo
Smith, E.N.D. — Private tuition
Stapleton, C.I. — Wei-hai-wei School
Stewart, H.St.J. — The Middle S., Georgetown, B. Guiana
Stewart, J.P. — Wei-hai-wei School
Thompson, J.P. — The Middle S., Georgetown, B. Guiana
Thorne, A.McC. — The Middle S., Georgetown, B. Guiana
Trotman, J.C. — The Second Grade S., Georgetown, B. Guiana
Vyfhius, H.R. — The Middle S., Georgetown, B. Guiana
Walker, I.N. — Private tuition
Whitehead, N. — Queen's Coll., Nassau
Wong, V.I. — St. Stanislaus' S., Georgetown, B. Guiana

GIRLS.

Allen, G. — Private tuition
Binning, D. — Ursuline Conv., Georgetown, Demerara
Blackman, D.K. — St. Joseph's Inter. S., Georgetown, B. Guiana
Cauzius, V. — Ursuline Conv., Georgetown, Demerara
Croal, F.E. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Cunha, A.I. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Cush, M.M. — Private tuition
De Freitas, I.C.O. — Private tuition
de Souza, L.B. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
de Souza, M.O. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Dey, A.F. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Durant, E.T. — Private tuition
Edwards, L.M. — The Middle S., Georgetown, B. Guiana
Eleazar, J.I. — The Middle S., Georgetown, B. Guiana
Fernandes, E.B. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana
Glasgow, E.M.L. — Private tuition
John, M.E.D. — The Middle S., Georgetown, B. Guiana
Lopes, C. — Ursuline Conv., Georgetown, Demerara
Low, A.R. — The Middle S., Georgetown, B. Guiana
Millington, C. — Private tuition
Pestano, E. — Ursuline Conv., Georgetown, Demerara
Peters, A.L.P. — Private tuition
Singh, A. — Ursuline Conv., Georgetown, Demerara
Smith, A.D. — Private tuition
Viera, A. — Ursuline Conv., Georgetown, Demerara
Whitehead, C. — Ursuline Conv., Georgetown, Demerara
Williams, N. — Ursuline Conv., Georgetown, Demerara
Wiltshire, E.I. — The Middle S., Georgetown, B. Guiana
Young, M.R. — Conv. of Mercy, Charlestown, Georgetown, B. Guiana

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION.—PASS LIST.

SEPTEMBER, 1910.

THE Supplementary Examination by the College of Preceptors was held on the 6th, 7th, and 8th of September in London and at nine other local centres — viz., Birmingham, Bristol, Cardiff, Edinburgh, Leeds, Lincoln, Liverpool, Manchester, and Newcastle-on-Tyne. The following candidates obtained Certificates :—

First Class [or Senior].

Pass Division.

Berlandina, C. Cooper, M. C.
Clifford, S. G. Hayden, E. G.
Thurston, V. J.

Second Class [or Junior].

Honours Division.

Breese, H. W. Lodge, S. D. Smith, J. T. *a.*
Cuff, C. C. H. Lynden-Bell, G. *h.* Stebbings, H. V. *a.al.f.*
Harding, G. H. Selby, S. V. *a.al.*

Pass Division.

Barlow, N. A. H. Hines, C. P. Pearce, D. G.
Barnard, G. O. Hitchcock, C. G. Rennard, E. M. *al.*
Barnes, B. E. Hodgetts, W. G. Roberts, O. A. L.
Bence, E. W. J. Holgreaves, F. W. *al.* Robinson, G. C.
Brewer, O. *al.* Howe, G. H. Rowland, J.
Bromley, F. Hyland, F. H. Saunders, A. C. T.
Bryant, E. H. Ishmael, E. C. Simons, G.
Burt, A. E. Jarrett, R. F. *ge.* Solomon, D.
Chown, H. Jones, G. F. Stephenson, E. L.
Clegg, J. *a.* Kearney, C. S. J. Stewart, S. O.
Cooke, E. L. *a.* Kennedy, D. M. Stott, C. R.
Court, A. Klosz, R. L. Stuttard, W.
Davy, S. D. *a.* Knowles, H. B. *a.* Sutcliffe, J. W. *a.al.*
Dickson, B. Lawrence, G. R. Terry, J. N.
Dixon, D. L. *e.a.gm.* Lever, W. K. Thomas, T. F.
Do ld, W. E. Linnell, W. H. Thornton, J. E.
Fischer, I. *ge.* Markham, G. H. Vincent, I. V.
Garcès, G. *sp.* Meredith, F. Vinson, A.
G bson, E. Mills, R. T. Watson, K. M.
Gill, L. Morris, L. A. Watterson, W. L. P.
Gurney, F. J. Pal, N. White, G. A. O.
Hallett, L. R. *al.* Parry, E. B. Withers, S. A.
Hearnden, W. R. G. Partridge, R.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively :—

a. = Arithmetic. *ge.* = German.
al. = Algebra. *gm.* = Geometry.
e. = English. *h.* = History.
f. = French. *sp.* = Spanish.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held on September 24. Present: Mr. E. A. Butler, Vice-President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage Smith, Mr. Bain, Mr. Barlet, Rev. J. B. Blomfield, Mr. Charles, Miss Crookshank, Miss Dawes, Mr. Hawe, Mr. Holland, Rev. R. Lee. Mr. Marx, Mr. Millar Inglis, Mr. Morgan, Mr. Pendlebury, Mr. Pinches, Mr. Rule, Mr. Rushbrooke, Mr. Starbuck, Mr. Storr, Rev. J. Twentyman, Mr. Walmsley, and Mr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Summer Examination of Teachers for Diplomas had been held on August 30 to September 4, and had been attended by 303 candidates. The Professional Preliminary Examination had been held on September 6 to 8, and had been attended by 245 candidates.

He reported that the Examinations conducted by the College on behalf of the Newfoundland Council of Higher Education had been held at 120 centres in June last, and the class lists of the successful candidates, with the examiners' reports, had been forwarded to the Newfoundland Council on August 15. The total number of candidates examined was 3,296, being about 600 more than at the last examination.

The Council received with the deepest regret the announcement of the death of Mr. H. W. Eve, and it was resolved that a letter of condolence should be addressed to Mrs. Eve expressing their sense of the great loss that the College and the cause of education had thereby sustained.

The Report of the Eve Memorial Fund Committee was adopted.—The Report recommended that the sum raised for the purpose of commemorating the services rendered to the College by the late Dean should be applied to providing a Silver Medal, to be called the "Eve Medal for German," to be awarded, under conditions determined by the Council, to the best candidate in that subject at the Certificate Examinations, and to providing a portrait of Mr. Eve to be hung in the Council Room of the College.

The Report of the Finance Committee was adopted.

The Report of *The Educational Times* Committee was received, and its consideration was deferred to the next meeting of the Council.

Miss L. Williams, Devonhurst, Eastern Esplanade, Broadstairs, was elected a member of the College.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—Gallatly's Modern Geometry of the Triangle.

By A. & C. BLACK.—Reynolds's Great Britain and Ireland; Barnard's British Isles in Pictures.

By MACMILLAN & CO.—Wilson's von Kleist's Michael Kohlhaas, and Word- and Phrase-book to the same; Carey's First Book of Physical Geography; Thomson's Threads in the Web of Life; Fournier's Wonders of Physical Science; Newbigin's Tillers of the Ground; Petilleau's Daudet's Tartarin sur les Alpes and Word- and Phrase-book to the same.

By METHUEN & CO.—Birkhead's Tales from Irish History; Clough's Elementary Experimental Electricity and Magnetism; Rahtz's English Literature, and Selections from English Literature, 1350–1700; Webb's Systematic Geography of Asia.

By MILLS & BOON.—Bucknell's Practical Course in First Year Physics; Boon's Preparatory Arithmetic; Harrison's Practical Mathematics; Shrive's First and Second French Unseen Books.

By J. MURRAY.—"Clari Romani" Series (Camillus); Poole and Lassimonne's Lectures Scolaires Intermédiaires (Un Aiglon).

By the OXFORD UNIVERSITY PRESS.—Tozer's Byron's Childe Harold I–II; de Sélincourt's Mérimée's Colomba

By RELFE BROS.—Common Entrance Examination Papers, 1904–1909; Miller's More Chats on Literature; Perry's Intermediate History of England, Part I.

By ALSTON RIVERS.—Michell's History of England to the Death of Queen Anne.

By RIVINGTONS.—Dix's Second Latin Lessons; Florian's First French Course; Massard's French Composition Book; Robinson's Story of England, Part I.

Calendar of the London School of Economics.
Calendar of the University of Manitoba.
Calendar of the Birkbeck College.
Calendar of the St. Andrews University.
Calendar of the University Correspondence College.
Calendar of the University College, Cork.
Calendar of the Edinburgh University
Calendar of the University of Bristol.
Calendar of the University College, University of London.

EVE MEMORIAL FUND.—LIST OF CONTRIBUTORS.

Abbott, Rev. Dr. E. A.
Adams, Prof. J.
Adamson, Prof. J. W.
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Armitage-Smith, Dr. G.
Ashby, Miss H.
Ashton, A. J.
Bain, A. W.
Baker, F. E.
Barlet, S.
Barnard, J.
Bateman, Rev. S.
Baumann, H.
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Bevan, Rev. J. O.
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Brett, F. A. B.
Brown, W. C.
Bruce, Rev. J. S.
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Butt, E. H.
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Chandler, F. R.
Charles, R. F.
Chettle, H.
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Collins, W. H.
Croad, C.
Crookshank, Miss M.
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Dawson, H. G.
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Dymes, T. J.
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Hudson, Rev. T. W.
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Jex-Blake, Very Rev. Dr.
King, C. F.
King, C. F. W.
Kitchener, F. E.
Ladell, H. R.
Lake, J. J.
Lawford, Miss F.
Lee, Rev. R.
Litchfield, G. A.
Littler, W.
Longsdon, J. W.
Lyde, Prof. L. W.
Macarthy, Rev. E. F. M.
Magnus, Sir P.
Marx, E. F.
Millar Inglis, A.
Moody, Dr. G. T.
Murison, Prof. A. F.
Musson, E. C.
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Pinches, E. E.
Proper, B.
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Riley, Miss L.
Ritchie, F.
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Ruf, E.
Rule, B.
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Scott, Dr. R. P.
Sidgwick, A.
Singleton-Smith, E. J.
Skeat, Miss B.
Smith, Miss B. A.
South, Rev. E. W.
Spiers, Prof. V.
Steadman, P. H.
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Swallow, Rev. Canon.
Thornton, J. S.
Toplis, Miss S. G.
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Tweedy, G.
Twentyman, A. E.
Twentyman, Rev. J.
Vaughan, Miss E. M.
Walmsley, J.
Walmsley, B. H.
Warre, Rev. Dr.
Webb, F. C.
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CURRENT EVENTS.

Fixtures.

At the Members' Meeting of the College of Preceptors, to take place on Wednesday, October 19, Prof. J. Adams will read a paper on "The Dullness of Schoolmasters."

* * *

University College, London, offers about a score of Public Introductory Lectures in the most varied subjects at the opening of the Session.

* * *

A Course of practical instruction on the Principles of Physiological Hygiene will be given by Dr. J. S. Edkins at Bedford College for Women during the October and Lent Terms, 1910–11. The Course, which is open to men and women, is especially designed to fulfil the requirements of teachers in schools and training colleges. Further information from the Principal.

Honours.

On the occasion of the visit of the British Association, the University of Sheffield conferred the following honorary degrees:—

LL.D.—The Right Hon. the Lord Mayor of Sheffield (Earl Fitzwilliam).

D.Sc.—Mr. W. Bateson, M.A., F.R.S.; Rev. T. G. Bonney, F.R.S.; Sir William Crookes, F.R.S.; Mr. Francis Darwin, M.A.; Prof. T. W. Rhys Davids, LL.D.; Sir Archibald Geikie, F.R.S.; Prof. E. W. Hobson, F.R.S.; Sir Oliver Lodge, F.R.S.; Sir Norman Lockyer, K.C.B., F.R.S.; Dr. H. A. Miers, F.R.S.; Sir William Ramsay, K.C.B.; Prof. C. S. Sherrington, F.R.S.; Sir J. J. Thomson, F.R.S.

D.Eng. (Doctor of Engineering).—Sir Joseph Jonas, J.P., and Sir W. H. White, K.C.B., F.R.S.

D.Met. (Doctor of Metallurgy).—Mr. J. E. Stead, F.R.S., J.P.

Endowments and Benefactions.

Prof. Goldwin Smith has left £140,000 to Cornell University, "to show my attachment as an Englishman to the Union of the two branches of our race on this continent with each other and with their common mother." Most of the late Professor's library, with £1,800, goes to the University of Toronto. The bequest by the late Mrs. Smith's will of their residence, The Grange, Toronto, as an Art Museum is confirmed in Prof. Goldwin Smith's will.

* * *

The late Mr. H. W. Eve, in his will, requested his wife to give such of his books as she should think fit to the Library of Victoria College, Wellington, New Zealand, and the Library of the College of Preceptors, and to give in her lifetime, or leave by her will, £2,000 to University College School, London, for general purposes.

Appointments and Vacancies.

The Rev. A. H. Cruickshank, M.A. Oxon., assistant master at Winchester, has been appointed Canon of Durham Cathedral (to which is annexed the Chair of Classical Literature in Durham University), in succession to the late Dr. Kynaston.

* * *

Dr. Allan Andrew, Chief Inspector of Schools for the Western Division of Scotland, has retired. He is succeeded by Mr. Munro Fraser.

An Inspector of Schools is wanted, probably in December, for the Province of Eastern Bengal and Assam. Age not over thirty. Rs.500 a month, rising to Rs.1,000; pensionable. Linguistic facility important. Apply (under covers marked "C. A.") to the Secretary, Board of Education, Whitehall, S.W., by October 15.

* * *

A Professor of Physics is required for the Government College, Rangoon, Burma; and two Professors of Physics for the Government College, Dacca, Eastern Bengal. Age not more than about thirty. Apply (endorsing "C. A.") to the Secretary, Board of Education, Whitehall, S.W.

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A Lecturer in Commerce is required at the Municipal Technical Institute, Belfast. Apply to the Principal by October 5.

* * *

Mr. Alexander L. Curr, B.A. Lond., Commercial Master, Madras College, St. Andrews, has been appointed to the new Lectureship in Commerce in Belfast University.

Mr. Curr is a Fellow and Registrar of the Society of Commerce, and has taken a large share in the teaching of the commercial section of the continuation classes at St. Andrews. He has been Secretary to the St. Andrews branch of the Secondary Education Association of Scotland since its formation.

* * *

The post of chief mathematical master at Merchant Taylors School, E.C., will be vacant in December. Particulars from the Secretary.

* * *

A Head Mistress is required for James Allen's Girls' School at Dulwich. See advertisement in the present issue of this journal.

* * *

Mr. Alexander Emslie, M.A., has been appointed Rector of Ayr Academy.

Literary Items.

The Cambridge University Press has taken over the copyright of the "Encyclopædia Britannica," and will issue a new edition—the eleventh—in twenty-eight volumes at the end of the year.

* * *

The Cambridge University Press will shortly begin to issue "a series of small volumes on literary and scientific subjects dealing with various aspects of thought, and with the results of recent discoveries, in a form acceptable to educated readers in general." "They are not intended primarily for school use or for young beginners." "The Coming of Evolution," "The English Puritans," "Heredity," "The Idea of God in Early Religions," "Plant-Animals," "Cash and Credit"—these are the titles of the volumes promised for October. The price is 1s. net. The editors are Dr. P. Giles and Prof. Seward, of Cambridge.

* * *

Messrs. A. & C. Black announce for early publication a volume on "London," generously illustrated in colour by eminent artists and described by the facile and humorous pen of Mr. A. R. Hope Moncrieff. Also, what promises to be a most interesting work, "The Sea Kings of Crete and the Prehistoric Civilization of Greece," by the Rev. James Baikie.

* * *

Of the fifty new volumes of "Everyman's Library" which Messrs. J. M. Dent & Sons announce for September, two of the most interesting will be those devoted to the pre-Shakespearean drama. Prof. Thorndike, of Columbia University, who edits the selection and contributes a full introduction, has designed the volumes for students of Shakespeare to illustrate all the tendencies in the beginning of English drama. Two other volumes will contain Ben Jonson's plays, with a full study of Jonson's dramatic works by Prof. Schelling, of Pennsylvania University. A volume containing a new translation of Spinoza's "Ethics and the Emendations" is specially introduced by Prof. Santayana, of Harvard.

* * *

Messrs. Williams & Norgate will issue shortly a popular edition of Spencer's "First Principles," containing the author's final amendments, in two volumes, at a very low price.

The same firm are adding to their well known Crown Theological Library Dr. Harnack's new work on "The Constitution and Law of the Church in the First Two Centuries," and Dr. Kittel's course of six public lectures on "The Scientific Study of the Old Testament." They have almost ready for inclusion in their Theological Translation Library the third volume of the late Dr. Pfleiderer's great work on "Primitive Christianity: its Writings and Teachings in their Historical Connections."

* * *

The prize of £100 offered by Messrs. Jarrold & Sons for the best story suitable as a reward book for boys and girls has been awarded to Lady MacAlister, wife of Sir Donald MacAlister, K.C.B., Principal and Vice-Chancellor of the University of Glasgow. It will be issued immediately by Messrs. Jarrolds at a popular price.

* * *

The publishing firm of B. Herder, of Freiburg im Breisgau, which has a most honourable and interesting history, will shortly open a London branch at 68 Great Russell Street, W.C., opposite the British Museum. Mr. Herder issues some three hundred new works or new editions every year, and prints and publishes books in thirty languages.

* * *

The *British Medical Journal* issued its annual "Educational Number" on September 10, giving a very comprehensive account of the provision for medical education in the various Universities and other professional institutions. The "Students' Number" of the *Medical Times* (September 3) also gives much similar information about the English and Scottish medical schools, the Irish Universities and medical colleges being dealt with in a subsequent number (September 10).

General.

Invitations to the proposed Conference of representatives of the Universities of the Empire in London in 1912 have already been sent to the Universities of the United Kingdom, Canada, Australia, South Africa, and India, and to the University of Malta. The Secretary is Dr. R. Roberts, Registrar of the Board for the Extension of University Teaching, University of London. A definite programme is under consideration.

* * *

The International Interchange of Students will hold a dinner in London on November 18 to welcome back the British University students now on a visit to Canada and the United States. Lord Strathcona will preside. Information from Mr. Henry W. Crees, Caxton House, Westminster.

* * *

The Centenary of Berlin University will be celebrated on October 10–12.

* * *

The Gravity Self-raising Rollers for Maps, &c., on which Mr. R. W. Weekes, M.I.C.E., M.I.E.E., read a paper before the British Association at Sheffield, are being manufactured by Messrs. George Philip & Son. The device is simple and effective.

THE RELATIONS OF SCIENCE TO INDUSTRY AND COMMERCE.

By R. Blair, M.A., B.Sc.,
Education Officer, London County Council.

[Read before the British Association at Sheffield.]

The subject of this paper is so comprehensive that there will be no difficulty in understanding that attention has been restricted to one or two aspects of it only; and, since the paper is written by one engaged in educational administration, chiefly to that relation which exists between the scientific and technical education provided at higher institutions in this country and the after careers of students. Even that relation cannot be treated in anything like an exhaustive manner within the limits assigned to me. My attention was specially directed to this matter some eighteen months ago by an opportunity which presented itself of reading some hundred and fifty letters written by past students of Universities or of institutions of University rank. The letters were representative of an entire body of students whose education had been assisted. They came from students, men and women, who had taken degrees or diplomas in varying numbers during each of the last fifteen years. Four months ago, when, at the invitation of the Committee of this Section, I undertook to read this paper, steps were taken to extend the field of information. Some five hundred letters of inquiry were addressed to teachers of repute at home, in France, Germany, and America; to representative firms of employers, mostly at home, some abroad; and to thirty of His Majesty's Consuls in Europe, Asia, and the two Americas. There have been before me also the written views of the Presidents of vast industrial and commercial concerns in the United States—views collected, in 1903, when I visited America as a member of the Mosely Commission. On the whole, my letters of inquiry have been treated with much sympathy, and I have had to examine a very considerable body of evidence of all kinds. I owe a great debt of thanks to the many distinguished men of science, and to many well known leaders of industry and commerce, who have so generously given attention to my inquiry and have been kind enough to give me their views, some of them at great length. I have endeavoured, in what follows, to reflect as faithfully as I can the different sets of views and to add to them some views and suggestions, the result of my own experience.

I.—Evidence from a Hundred and Fifty Graduates.

First, as to the views of the hundred and fifty past students. These students all belong to the class for whom the earning of a living is imperative, and, in the main, they represent Oxford, Cambridge, and the London institutions of University rank.

Among minor points made by them are these: The engineers emphasize the need of workshop practice under commercial conditions, finding that their future is in danger of being marred by lack of "works" experience; and some of those who have become industrial chemists express the need for five years' training—three for degree and two for research. The view of the engineer student needs no elaboration, for nowadays there is almost universal agreement that some form of the "sandwich" system affords the best possible method of training. The views of the chemists will be referred to later.

The students also complain that posts are obtained not on merit, but through influence. This contention is pointedly illustrated by a University college professor, who states that he knows one man who holds a most important berth, and is undoubtedly a first-class man in every sense of the word. This man took his University training as a mechanical engineer and graduated with first-class honours, and did this after having had "works" training extending over some eight years. On leaving college, the man approached every mechanical firm of importance in Scotland in the hopes of getting a start. He found it impossible to do so. Finally, *through influence*, he did manage to obtain a junior berth, and is now the head of an important concern.

The most striking feature of the present occupations of the students is that only 10 per cent. have found their way into industry or commerce; another 10 per cent. have entered the higher ranks of the Civil Service, including technical posts. Some half-dozen are in the Church, another half-dozen are practising medicine; the remainder have taken to teaching, and it was clear, in a fair number of instances, that selection of a profession was not a matter of choice, but one of necessity. Many a man, towards the end of his University career, discovers for the first time that he has nothing to offer in the industrial or commercial market in return for a salary. If he has no technical knowledge or skill, he is, so far as his education helps him, in the same position as a secondary-school boy, even if he is not handicapped on account of his greater age. Of those also who possess technical knowledge or skill, such as students of engineering or chemistry, a good many find themselves offered terms which pride or poverty or both forbids them to accept. With pride I have no concern and no sympathy. Poverty is a different affair. When a man has spent his last penny in completing his University career, and when there is also pressure from home, there is no real choice between teaching, which is obtainable at £2 or £3 a week, however inadequately equipped the man may be for this purpose, and an office or a workshop at anything from, say, 10s. to 30s. per week. Sometimes the shop, factory, or business house offers nothing, and occasionally a premium is required. It will easily be understood that, under such circumstances, an appeal is made by the students for more help in finding posts for University honoursmen who are not eligible for the Civil Service and who do not care to turn schoolmasters, and it will not be difficult to appreciate that at the critical point in his career—the selection of a means of earning a livelihood—a man is apt to write harshly of some of the slackness of University life and to complain, as one of the most successful of them has done, that he wanted to be made a chemist, but his University insisted on his wasting his time on Divinity and did not even ask for German!

II. Evidence from the Staffs of Universities and of Technical Institutions.

A great change in the relations of the University and the market has occurred during the last quarter of a century. The general advance in the standard of education has produced a larger sympathy on the part of the market for educational institutions and their products; and the movement in favour of technical education has widened the range of objects of University education and the social classes from which University students are drawn, and has, perhaps, compelled the Universities to have regard to the diversities in the world's work and to the function they should discharge in preparing their students to live. During the period referred to, a large number of technical institutions have sprung up all over the United Kingdom, and, within quite recent years, there have been strong influences at work to bring about co-ordination, if not incorporation, of the greatest of the technical institutions with the Universities within whose areas they have emerged. The danger in this process of amalgamation is that it may be premature. It may come about before the realization of what each institution, in its own way and in its own time, has had to contribute to national problems, and before it has been fully recognized that the annexation of a technical school is not merely the end of a rival, but the beginning of a new public responsibility, and that in the result the vitality and, if you like, the harsh industrialism and commercialism of the technical institution may be too much submerged by "academic control."

The evidence placed at my disposal shows, on the whole, a tone of great hopefulness. This hopefulness of tone is common. It is displayed by the newest of the large municipal technical institutions in the heart of a great industrial centre and by some of our oldest Universities.

It is becoming evident that the institutions are recognizing that, however much the market, in its quest after cheapness, has failed to distinguish the real from the spurious article, the institutions themselves have not been without much blame for placing inefficient machines on the market. An eminent professor of chemistry tells me that his whole

> professional life is strewn with the examples of the unwillingness of industry and commerce, the State, and municipal authorities of this country to take advantage of the services of young men who have received the highest technical training as chemists. But [he adds] there is a tolerably rapid improvement taking place, and we who are urging the importance of employing these highly trained young men have to remember that there has been a great lot of poor stuff turned out from the Universities and technical colleges, and that the British manufacturer has a good deal to say in his own defence.

There appears to be least difficulty in showing that the

products of the agricultural colleges have found posts in agriculture or in allied industries. The case of agriculture may be somewhat exceptional. There has been so much development in this industry in recent years that there was bound to be a considerable demand for trained men. Moreover, many of the young men who have undergone a course of training in agriculture have done so in order to fit themselves for farming, or otherwise dealing with land as land agents or farm managers on their own account. Further, it has, for a fair number of years now, been obvious that study in the agricultural colleges had to be combined with practice on the farm. The agricultural colleges also report that there is a considerable demand for their students in various branches of foreign and colonial land development work, such as tea, coffee, cotton, and rubber planting, management and extension of irrigation colonies, forestry, stock farming, and so on. A certain number of students trained at agricultural colleges are in demand for commercial undertakings in businesses associated with agriculture. For example, the German Potash Syndicate has a number of men representing its interests in various parts of the world who were educated at one of our oldest agricultural colleges, and the Permanent Nitrate Committee and the Sulphate of Ammonia Committee have also appointed agents or representatives who have gone through a similar course of training. The principal of the College attributes this preference for men who have received a college education, instead of those who have had a business training only, to the fact that the work undertaken by these representatives combines a large propagandist element with ordinary business management. In Ireland, the State directly organizes the application of scientific education and of scientific knowledge to agriculture and allied industries. The Department of Agriculture and the County Committees alone take advantage of young men who have received the highest technical training in agriculture. Since 1903, some sixty or seventy men have passed through the Faculty of Agriculture in the Royal College of Science, and all have been employed by the Department of Agriculture or by the County Committees. Farmers in Ireland operate on too small a scale to warrant them in employing experts as is done by large industrial concerns. Those who want expert assistance can get it through the County Committees or, for special work, from the Department. In this way the Faculty of Agriculture is exerting a strong influence on agricultural practice. Leadiug farmers—those of the best educatiou—make most use of the expert, and the smaller men follow them. In this way, the influence of the Royal College of Science is far greater than is usually supposed to be the case. The college course fits men to take up the important positions of itinerant and special instructors, and the whole course has been designed specially for the one purpose. Moreover, the instructor and expert, after leaving college, are kept in touch with the work of the college and with that of instructors in other counties. If the college taught, so to speak, in the air, and was not, as it is, part of a great organized system, it would do little good. No students of agriculture attend except those selected to become teachers and experts under the Department and the Local Authorities. For such teachers and experts there is always a demand, since some of those who have been trained and who have worked as experts for a time, leave—some to business, others go abroad to take up work as teachers or experts in the colonies. In addition to this main work, the college trains experts in forestry, horticulture, and creamery management, and, in these branches of Irish industry, the trained men perform the same functions towards these industries as the agricultural expert does to agriculture proper. While no one who intends to become a farmer takes the Royal College of Science course—since this last would be out of all proportiou to the capital invested in even the large farms in Ireland—quite a number now attend shorter and less expensive courses at the Albert Agricultural College and elsewhere. There are thus other channels through which the higher technical training at the Royal College reaches those engaged in the agricultural industry, siuce these local colleges, stations, and winter schools are staffed by Royal College men who keep in touch with the central institution. The lesson which Ireland has to teach is that the Faculty of Agriculture in the Royal College of Science is part of a great organization directly serving the interests of the agricultural industry, and not an independent institution pursuing knowledge for its own sake or educatiug students without certainty of their profitable employment.

The evidence from the engineering colleges and institutions is also, on the whole, satisfactory. Here and there may be found somewhat doleful notes to the effect that the large majority of State and Local Authorities do not lay themselves out to take advantage of technically trained men, and, in one case, a view that has much popular currency has been put to me in fairly strong terms. It is to the effect that employers, especially those who have not very large and important undertakings, but who, nevertheless, would have their businesses improved by securing technically trained men, have an ignorant prejudice against such assistance. It is suggested, as the possible explanation of their attitude, that the employers fear that, if they engaged men of greater attainments than themselves, they would simply be raising up possible opponents in their own line of business. There may be much truth in this view, which does not, of course, apply to first-class firms. But there is, I think, another view worth consideration—that the size of the business concern (the amount of capital sunk in it) has much to do with the employers' attitude. The employer does not possess the faith that will enable him to risk the addition of another salary to his working expenses; and no one, without a fair trial, is able to give him the mathematical demonstration which he seeks that the salary might often be saved merely out of the waste of materials which exists owing to the absence of scientific knowledge on the part of his men of the materials they are handling, and to their having to feel their way by experiments that are more in the nature of guesses. Such firms will be converted only by the example of others.

There is abundant evidence, however, that there is much less prejudice than formerly—that there is a growing tendency on the part of State and Municipal Authorities to secure for their services engineers who have received the highest training, and that this attitude is especially true of certain industries whose success depends absolutely upon highly competent, trained, scientific experts—as, for example, the steel industry. I suggest that the growth of this attitude corresponds generally in time with increased recognition on the part of the teaching institutions that engiueers cannot be wholly made at college. The colleges have at length realized that the student must, from the first, learn the limitations of practical engineering, and that this can be done by the introduction of a practical atmosphere and without sacrificing any of the physical principles of engineering already well taught at the colleges.

One of our ancient Universities says: "We have not now much reason to be dissatisfied with the attitude of employers towards our (engineering) students." Several of the largest of the technical institutions say they have no difficulty in placing their best students, and one University College states that there is a standing demand, as soon as the college year ends, from several of the heads of engineering establishments within the neighbourhood of the college for the best students. But these heads of firms demand the "best," and are willing to pay a living wage right off to youths who have never before been iu works and have only their college training as qualification. It is added that second- or third-rate men are in very little demand, and there is often a difficulty in not being able to recommend youths of sufficiently high standard to fill vacant posts. This case recalls other colleges where students (the "best," at all events) have no difficulty iu securing places owing to the personal connexion established between the heads of the neighbouring works and the head of the engineering department.

The return issued by the Appointments Board of the University of Cambridge in February of this year is specially interesting. This return shows that the number of candidates for the Mechanical Science Tripos whose names appeared in the Honours Lists in the years 1894 to 1906 inclusive was 252; that the Board obtained information as to the posts held by 176 of these men. Of the 176 only 23 were engaged in teaching, while 122 were engaged as engineers in some manufacturing or commercial concern or in the public service at home or abroad. The return is the more satisfactory iu that 133 of the names belong to the years 1902 to 1906, and in that most of the men have to spend at least two years as probationers of some form in works before they can secure a definitive appointment of any kind.

It has been poiuted out to me, both by professors aud the heads of large engiueering firms, that there is still a defect in the college trainiug of young engineers which ought to be immediately remedied. The view is so well presented by one of the colleges that I give it *in extenso*:

There are certain defects in the average college training. I consider that the question of cost in design, and the commercial side generally, receive quite inadequate attention in most colleges. Practically all engineering firms exist for making profit. Modern competition makes

economic design, good efficiency, and cheap upkeep absolutely imperative. The employer wants men who can, in their designs, give the most for the money. It is therefore insufficient to teach design on physical principles alone. Methods of production, ease of repair, depreciation, even conditions of transit in large machines—all these and more must be considered in effective design. Such limitations as these should, I think, be brought before the student in greater measure than they are attempted at present. This will tend to "practicalize" the the student while his mind is still formative.

The case of chemistry is more difficult. There is, unfortunately, no room for doubt that the British chemical industry has suffered largely by foreign—chiefly German—competition; and possibly no section of British manufacturers has been so severely lectured as those in whose processes applied chemistry was capable of playing a large part. The chemical manufacturers were told to follow their German rivals by enlisting the assistance of the chemist trained in the scientific laboratories at our leading institutions and that the industrial face of Great Britain would be changed. The manufacturer did not apparently grasp the meaning of the arguments or the appeal; he may possibly have comforted himself with the feeling that, as things had been, so would they be: he may even have looked at the works that needed reconstruction, at the state of the Patent laws, at the character of the supplies of raw material, at labour, at capital, at agents, markets and means of transport, and may have come to the conclusion that the professorial lecturers understood none of these things; and he may have chosen a chemist from an analyst's office or from a medical school and have failed to discover that chemists were of any value. Whatever he did, and for whatever reason he did it, it has been stated in the papers before me that he did not give much heed to the scolding from professorial chairs; he could not be persuaded that scientific education was essential to his business. And so in time the penalty had to be paid, and that, unfortunately, by many who had no choice in the matter. Perhaps, after all, the chemical manufacturer merited less odium than has been heaped on him. It is a human quality to believe in your fortifications until they are reduced to ruins at your feet. It may be true, also, that the chemical manufacturer was not tactfully wooed; and it certainly is true that under the name of chemist enough rubbish was supplied to him to break down his faith in the panacea offered. Twenty years ago the research chemist qualified for industrial work could scarcely be obtained from English laboratories. He had to be imported from Germany. The English schools turned out only analytical machines. The influence of a few well known chemists and of the 1851 research scholarships has changed this, but the manufacturer has not yet recovered from his early disappointment.

It is gratifying to find evidence of change. The public may not yet believe that "scientific activity is the real and solid basis of national prosperity," and all manufacturers may not yet be fully prepared to endorse the view that "industrial development is ultimately dependent on scientific development," nor everywhere to demand chemists trained in Research writ large, but they are learning or receiving lessons sometimes in ways not altogether creditable to British intelligence. One of our most distinguished chemists, and a man of large experience inside and outside of the college laboratory, says:

I am very clearly of opinion that, with very few exceptions, the State and Municipal Authorities do not lay themselves out to take advantage of men from twenty to twenty-two years of age who have received the highest technical training as chemists. Municipal Authorities require the services of men who have had a specialized training as chemical experts in connexion with the working of the Foods and Drugs Acts, and there is a tendency on their part to prefer the services of men who are willing to take underpaid positions. This does not conduce to the efficiency of the working of the Foods and Drugs Acts, and the general community suffers in consequence of the lax administration of these Acts. Municipal Authorities occasionally require the services of engineers and chemists in connexion with municipal undertakings, as in gas and water supplies. As regards the chemists they employ in connexion with such undertakings, I think, on the whole, the community is adequately served; the chemists employed, for example, in the manufacture of gas are, as a rule, well trained, and competent to discharge their duties. As regards private employers, I am of the opinion that British manufacturers, as a body, are not yet fully sensible of the advantage which they might obtain by the employment of skilled chemists in manufactures in which chemistry plays a prominent part. There are, however, exceptions. Some of the best equipped works of this country—usually wealthy concerns—strive to keep in the forefront of industrial progress. We have in this country an increasing number of men of foreign extraction who are engaging in chemical manufacture, and it is significant to note that such employers are far more prone to enlist the services of expert chemists than are the rank and file of our own manufacturers. I think this is due to the circumstance that the advantages of a University training have come home to these people more directly than to our manufacturers, and they are more quick to perceive the material advantages of the application of the highest training in pure and applied science to their industries. I could give a number of illustrations of this fact by pointing to the existence of foreign firms who have secured for themselves in this country a pre-eminent position.

The statement as to the increasing number of men of foreign extraction engaging in chemical manufacture in England, who are far more prone to enlist the services of expert chemists than are the rank and file of our own manufacturers, points a lesson which is well illustrated from two other quarters. The Secretary of the Cambridge Appointments Board says (*Empire Review*, for January, 1905):

A feature of the lists of matriculations (at Cambridge) for the years 1880–1895 is the recurrence of German names, with the note, "Now assisting his father in business." From this it would appear that the representatives, naturalized in England, of the nation which has, more than any other, astonished the world by its industrial progress have deliberately chosen for their sons a University career as a preliminary to business life.

The other illustration comes from British business life. Only one letter from a British manufacturer emphasizes the need of research, and that letter is signed by a chemical manufacturer with a German name. As to evidence of change, one of the largest technical institutions says:

We are fairly sure of placing at once all the best men who have taken a graduating course in any branch of applied chemistry.

Another technical institution—probably the largest—states:

We have been unable, during the last three or four years, to meet all the demands upon us for trained chemists, and at this moment we are unable to make nomination to two or three most important posts for which trained chemists are required because all our men are satisfactorily placed.

From one of our oldest Universities comes the statement:

There is no difficulty in placing chemists of the highest rank in first-rate technical posts. By highest rank I mean people with approximately Fellowship standing and great originality.

Sir William Ramsay writes:

Some months ago I had the curiosity to pick out from my class lists, back to about 1890, a hundred names of men (and women) whose subsequent history I know. The result was roughly: sixty in industry (analysts, private or in works, managers, proprietors of works, &c.); twenty-five in teaching posts (assistants in Universities or University colleges, schoolmasters, and a few professors—about six); and fifteen given up (married women, men who have changed their profession or dead).

The most gratifying fact about this analysis is that it suggests that 60 per cent. of Sir William Ramsay's students are pursuing industrial chemistry for a living. An examination of the after careers of the 1851 exhibitioners reveals the following results (it will be remembered that science scholarships are awarded annually by the Commissioners of the 1851 Exhibition; the scholarships are awarded for research in the experimental and observational sciences bearing upon industries; the nomination of scholarship holders is made by the authorities of twenty Universities and University colleges within the British Empire, and, with rare exceptions, these nominations are confirmed by the Commissioners; the scholarships are of the annual value of £150 a year, and are ordinarily tenable for two years):—Between 1891 and 1906 there were awarded 262 scholarships. Of the holders, 145 are now engaged as professors, assistant professors, lecturers, or assistants in science colleges, or other educational institutions; 76 hold positions in manufacturing firms or in public departments, and the remainder may be conveniently classified thus: Scholars recently retired, 6; continuing research in private capacity, 12; engaged in professional pursuits, 10; deceased, 6; occupations unknown, 3; no longer engaged in scientific work, 4, of whom 3 are ladies. I find, on further analysis, that, of 112 scholars whose branch of science was chemistry, 50 are, or have been, engaged in industrial chemistry.

I am not able to provide more statistical details. As a rule, Universities, University colleges, and technical institutions have not kept records of the after careers of their students, and until quite recently most of the Universities (and some not yet) have not had any organized means of giving assistance to students who may be seeking posts at the end of their college career.

Looking at the matter quite broadly, I see no reason for

believing that the number of highly trained chemists who find their way from colleges into industrial chemistry is anything else than insignificant compared with similar figures for Germany or the United States of America. The following facts may aid in understanding the conclusion of "insignificant" which I have reached. In 1904 and 1905 an average of 400 chemists received the doctor's diploma, or the Technical High School diploma in Germany; with the materials at my disposal I have been unable to convince myself that there were in 1908 300 students of all faculties of applied science taking a fourth-year day course in British Universities and technical colleges.

For some of these results our system of degree giving is denounced in no measured terms. An able University professor says:

The fact is, the whole thing—University teaching of chemistry—is turned upside down. Much of our University work is simply good secondary work. A pass B.Sc. degree, for example, is about the standard of a school-leaving certificate in a civilized country. Universities lay down syllabuses, time-tables, hours of work, and spend a large proportion of their energies in examination grinding. They teach for examinations instead of teaching for the diffusion and advancement of scientific knowledge. When a man arrives at a University he has a "curriculum"—in other words, simply a glorified school syllabus—laid out for him, and is promised a degree in three years if he is a good boy. They do not do that in Germany. We are not [he continues] really quite so bad in this country as regards our so-called "honours" degrees, but the centre of gravity is wrong for all that. . . . The centre of gravity of the English system is still in the examination hall, even though a good man does stay on for several years of research afterwards.

Others, who have clearly devoted themselves to a study of the matter, demand a five years' course for the making of a chemist—three for degree and two for research. One of the most thoughtful memoranda sent to me by a University professor shows:

On entering the research laboratory the graduates are rarely independent thinkers and their knowledge is essentially book knowledge. When freed from the necessity to attend lectures or to work for examinations, they seem to pass through a stage when they actually have to struggle to develop their resources, and often the students with the best degrees make the poorest research workers. . . . Again, the business faculties of the students at this stage are poor, and their knowledge of modern languages as applied to scientific or commercial work is quite inadequate. These are deficiencies which I have to make good in the research department. . . . Students at this stage are not qualified to take up positions of responsibility. The graduate of twenty-two has, however, many latent possibilities which may be successfully developed by a course of research work.

The time spent by the graduates in research work in the University laboratory is from two to three years, and the average age of the students on leaving is twenty-four to twenty-five.

Taking an average case [the Professor continues], I can say that at the end of the first year the research student has commenced to think for himself, to anticipate difficulties and to overcome them when encountered. He begins by suggesting new working methods and finally proposes new topics of research. He has a working knowledge of scientific and technical French and German, knows the original literature of his special topic, and is generally conversant with modern research thought. His business style has also improved greatly. A considerable advance in these respects takes place during the next year, and, in most cases, a two years' course is sufficient to produce a man who has had a good education and who knows how to use it. It is my experience that when students with this training enter technical work they master the literature of their new subject very quickly and effectively. They seem to be able in a short time to form an estimate of the present position and future possibilities of the new subject, and to bring their speculative faculties into play. I therefore regard the time spent at research as a necessary part of scientific training if University graduates are to enter the field of technical work, and men thus equipped make most valuable officials, even taking into account the fact that they have no previous experience in the supervision of workmen and have generally no knowledge of chemical engineering.

But the British parent does not care to afford to keep his sons at the University until they are twenty-four to twenty-five years of age, especially as a period of probation has afterwards to be served in works, unless he sees that his money is going to be a good investment. And so we come back again to the manufacturer.

As to many of the other subjects in which the Universities and higher technical institutions touch industry and commerce—architecture, biology, economics, and modern languages—there is little to be said on the side of the institutions. Biology is comparatively an unploughed field; the opportunities for economics are not yet fully developed. Railways, banks, insurance companies, and great business houses might, say the colleges, pay more attention to the really able economist. At the School of Economics a course of lectures in administrative subjects was arranged in the autumn of 1906 in order to equip officers for the higher appointments on the administrative staff of the Army and for the change of departmental services. This course is now annually attended by thirty officers selected for the purpose by the War Office. In order to provide the teaching required by candidates for the degree of B.Sc. in the Faculty of Economics and Political Science, with Honours in Transport, the department of the school dealing with this subject has been developed. The lectures in this department, besides being open to students in the Faculty, are attended by some three hundred students engaged in railway administration. These students are drawn mainly from the staffs of the following railway companies: — the Great Western, the Great Eastern, the Great Northern, the London and South-Western, the Great Central, and the Metropolitan, their fees being, in many cases, paid for them by their companies. The lectures are also attended by members of the staffs of the other London railways and occasionally by officials of Indian, colonial, and foreign railways and other persons.

As for modern languages, it is alleged, by the teaching institutions, that the fundamental business attitude of England is entirely wrong. It will be seen later that this last view is amply confirmed from important and well informed sources.

One further point of view of the colleges. Personality is by far the greatest factor—no amount of training can produce an exceptional man out of a man whose initial natural qualities are only second class.

Let me close this section with the experience of the Institute of Technology, Massachusetts:

It has been the experience of this Institute for many years that practically every one of its graduates has the offer of one or several good positions within a few weeks of graduation. Representatives of many leading branches of industry visit the Institute regularly before the end of the academic year and select what they regard as the most promising men from those who are about to graduate.

The Institute of Technology and many other institutes in the the United States form a market for men. I have come across only one firm in this country which took pains to secure the best human material from the University markets.

(*To be continued.*)

EVENING EDUCATION IN LONDON.

The London County Council Evening Schools, Technical Institutes, and Schools of Art reopened on September 19; the evening classes at the Polytechnics, on September 26. During the winter session, 1909–10, some 170,000 boys and girls, young men and women enrolled themselves as students at evening classes of all kinds, and a large proportion maintained a regular attendance throughout the session. The steady growth of a large body of serious students, and the general sympathy and active encouragement of employers, show that evening education is much appreciated, and forms a valuable part of our educational organization.

In the schools as a whole, instruction is provided for every kind of student, young or old, employer or employée. The fees charged at ordinary evening schools are well within the reach of most young wage-earners; they vary from 1s. to 5s. for the whole session. In many cases no charge is made for apprentices or improvers. At the Polytechnics, Technical Institutes, and Schools of Art the fees are, as a rule, a little higher.

Not only do the evening schools provide plenty of mental work, but a great deal of attention is also devoted to Drill, Gymnastics, and Physical Education generally. Further, there are many social advantages to be shared by those who are attending more advanced evening instruction—clubs, various societies, and athletic meetings. Such advantages do not form the main object of the evening schools. They are only to be shared by those who have put the question of hard work and instruction in the foremost place.

Full details are given in the prospectuses of the various institutions. Any Polytechnic, Technical Institute, or Council's evening school will supply handbills and prospectuses giving details of all the different kinds of instruction provided.

A ROYAL COMMISSION ON HIGHER EDUCATION.

For some time past (says a writer in the *Morning Post*) it has been rumoured that a Royal Commission to deal with the older Universities is in the air. But *qua* Universities, Oxford and Cambridge do not really need a Commission. The last Commission professed to deal with the question of endowments, and though they made some mistakes, yet the net result of the Commission was undoubtedly to render the machine more effective. Moreover, the last Public School Commission undoubtedly enabled the schools concerned to be far more efficient. The result has been that a high standard of efficiency has been reached both by the Universities and the public schools; the machinery is all there, and it is in working order. What does seem to be needed is that a Commission should, at all events before very long, take up the question of the whole curriculum of higher education and endeavour to co-ordinate the Universities with the public schools. It may be taken for granted that, for a boy of real ability, the co-ordination of schools and Universities is satisfactory, and that definite ability is recognized and duly developed. But what is no less undeniably true is that the rank and file of the public schools are very inadequately educated, while the passman's interests are entirely sacrificed. What seems to be the guiding principle is that if a boy has definite abilities in one direction or another those abilities should be respected and that he should be allowed to specialize; but that, on the other hand, no attempt should be made to recognize or encourage the special bent of the average schoolboy or the average passman, but that he should be kept at work at a dreary hotch-potch of elementary studies, with the result that at the end he is neither intellectually stimulated nor practically equipped. The most flagrant case is that of compulsory Greek. No one doubts the value of Greek as an educational instrument when a certain stage has been reached. But the average schoolboy who is destined for Oxford or Cambridge is prevented from reaching that stage by the congestion of other subjects, while he cannot attain to the mastery of other subjects owing to the pressure of the classical subjects. . . . Of course, it is the constitution of the Universities which is at fault; to leave questions of curriculum to the decision of non-resident members of the University of whatever standing is in reality as absurd as if all Old Etonians were given a vote which governed the curriculum of Eton. Yet the argument which is used in its favour, that it brings to bear a liberal force of public opinion upon the narrower academical prepossessions of the University, would apply equally to the other case.

The real point is that the principle of general and special education is wholly misapplied. There would be something to be said for resolutely keeping the education of able boys and youths general; it would give them breadth of interest, and it would not seriously hamper their practical gifts. But it is just the average boy and youth that needs special education, because their grasp is not wide and they could possibly obtain some inkling of intellectual culture if they were allowed to master one subject, whereas the diffusion of their limited powers nullifies the effect of all subjects.

What a Commission could do, then, would be to insist that the Universities should provide a series of alternatives for the passman by which it would be possible for a man to attain some definite proficiency. The thing that is really needed is a great simplification. What dons and schoolmasters are not aware of, and what by the nature of the case they can hardly be aware of, is that within the last fifty years the whole conditions of life have altered. In earlier days, when competition for livelihood was not so severe and when things went largely by influence and by interest, it was possible to segregate the sons of wealthy parents and to put them under a system of sound if austere culture. But now the pressure of the democracy is being felt everywhere. Others are demanding, and rightly demanding, the privileges and advantages of higher education; they are more and more entering into competition with the sons of the wealthier classes. It is becoming more and more imperative that all boys and young men who have to make their way in the world should be efficiently equipped. And more than that. The increased facilities of communication, the enlarged interdependence of national interests, the development of the influence of the Press, the pressure of social problems, render it absolutely necessary that boys and young men should make acquaintance with all kinds of national and international problems. We cannot hope to prosper by enclosing boys up to manhood in so antiquated an atmosphere of knowledge and thought and then launching them bewildered on a very complicated world. The whole thing must be modernized. History, geography, economics, modern literature must all take their due place. . . . It is not that one desires the intellectual standard to be lowered; one rather desires it to be vitalized and enforced. One desires the curriculum to deal with matters which a man and a citizen ought to know. If ideas and knowledge have any expanding force at all, it cannot be to their detriment that those ideas and that knowledge should be concerned with the actual problems and interests of the world, rather than with the solved problems and faded interests of the remote past.

A Commission, then, might set itself to deal with the subjects of education; but it could do more than that—it could co-ordinate the examination systems of the country and insist on a greater elasticity all round. It could take up the question of the training of teachers, and it could deal with the pressing question of how to make the scholastic profession, financially and socially, one to attract the best energies of young men.

The question is simply this: Whether the nation is going to allow education to remain a privileged monopoly in the hands of a ring so strong that it can thwart the universal demand for greater elasticity and simplicity. No one who knows anything of public school or University life would venture to impugn the conscientiousness, integrity, and efficiency of the teaching profession as there employed. But their ideals are out of sympathy with the age. They are backing an outworn culture, and making even that ineffective by a half-hearted compliance with modern demands. They have held to their old ideals while professing to modernize education; while they have not been far-sighted enough to see that by so doing they have merely sapped the former confidence in the earlier method, without producing an active faith in the muddled sciolism of the present methods.

What one laments is the grievous waste of time and money and energy which bears so little fruit. It may be, of course, that the time is not yet ripe for interference, but one cannot help feeling that a timely interposition might yet enable the old to glide smoothly into the new without some serious and devastating convulsion.

If, then, a Commission were to take shape, it should not attempt any interference with the endowments or arrangements of any particular institutions or group of institutions. It should simply aim at co-ordinating the higher education of the country, and make it impossible for the Universities either to terrorize or play into the hands of the public schools. The aim should be not so much to limit education as to simplify it, to give a freer choice of alternatives, and the power of expanding in a congenial direction. Special subjects must no longer be privileged and subsidized. It must be possible for parents to say that a boy, whatever his abilities, should have an opportunity of developing them. It must be made impossible for the Universities and schools to impose their own predilections and preferences upon the will of the nation. It must be realized and plainly manifested that the Universities and schools exist to serve the State, and that the State does not exist to obey the Universities and schools. Questions of method and organization may well be left to expert hands, and no attempt to dictate details should be made. But the time has certainly come for the State to indicate clearly the general lines upon which the rising generation should be educated, and to demand that education should be brought into close and vital touch with the conditions of modern life.

At the Conference of the National Federation of Assistant Teachers at Newport, Miss E. Phillips, Cardiff, the first lady President of the Federation, in her address, said that the domestic training of girls was vital to the nation and should be taught in all schools. She pleaded for greater financial support for elementary schools, as full value for the money was not obtained from secondary schools. There was no educational reason for the unemployment of teachers. Fully qualified unemployed teachers were eager to work in the schools, and there was ample room for them if the size of the classes was reduced and the unqualified teachers eliminated.

MISS KATE STEVENS.

Among the British teachers who did their part in making pleasant the visit of the Manitoban teachers (says the *Educational News*, Edinburgh), none was more useful or more interested than the subject of this note. Miss Kate Stevens is the Head Mistress of Montem Street Higher Grade School. She was a pupil-teacher at Filey, and afterwards served as an assistant mistress under the Leeds School Board. After a short period in Leeds, Miss Stevens went to London and secured immediate preferment. Her first school was Westcott Street in the Borough, and at the end of three years' work there Miss Stevens went to the Finsbury Division to open and organize the Station Road School, remaining there until 1907, in which year she succeeded Miss Crees at Montem Street, her present appointment, as Principal of Montem Street Higher Girls' School.

That Miss Stevens has taken a liberal view of her duty is clear from a consideration of the educational offices she has held. She has been a member of the Council and Education Committee of the Teachers' Guild; delegate on the Bibliography of Education Committee; on the Executive Committee of the Nature Study Council; on the first Executive of L'Entente Cordiale; for thirteen years was Honorary Secretary of the London Branch of the Child Study Association. When paying a six months' visit to America to study schools and education, Miss Stevens was received at White House by President Roosevelt. On the occasion of the British Association Meeting at Leicester, she had the unique honour, for an elementary-school teacher, of being made a member of the Education Committee. A life so strenuous and an experience so rich and varied, have naturally made their mark on the subject of this sketch, and ample testimony of this has been given by those with whom Miss Stevens has come in contact, amongst others, Sir John Cockburn, Prof. Earl Barnes, and Principal Baldwin, of Hyannis State Normal School, U.S.A., where, during the summer of 1909, she gave a course of lectures on "School Administration." As a speaker and writer she is indeed better known in America than at home. This is not because she has held herself aloof from association with her own colleagues. Sir James Yoxall has said that he is a member of every association for which he is eligible. The same must be true of Miss Stevens. She is a member of the National Union of Teachers and other teachers' societies. The Benevolent and Orphan Fund she loyally supports. She is connected with the Teachers' Guild and College of Preceptors; was formerly an Associate of Toynbee Hall; helped to found the Sociological Society; is a member of the Institute for Social Service, and labours for the Workers' Education Union; and she has applied for membership of the Educational Institute of Scotland.

TRADE UNION EDUCATIONAL POLICY.

The following comprehensive resolution, forming a statement of the trade union educational policy, was carried at the Trades Union Congress at Sheffield (September 16):—

In view of the sacrifice of child life, resulting from the Capitalist system, this Congress urges the organized workers to continue their effort to secure Parliamentary and municipal recognition of the trade union education policy, the demands of which are essential to a minimum of well-being for our future citizens. They are as follows:—

1. The State maintenance of school children.

2. Scientific physical education with individual medical inspection and records of the physical development of all children attending State schools; and skilled medical attendance for any requiring it; and, in order to secure this, the following proposals should be carried into effect:—(*a*) The development of the recently formed Medical Department at the Board of Education, the head of which shall be directly responsible to the Minister of Education, to whom he shall report annually. (*b*) The payment of an adequate grant from the Imperial Exchequer for purposes of medical inspection and for the establishment under every Education Authority of properly equipped centres for medical treatment. (*c*) The establishment under every Education Authority of scientifically organized open-air recovery schools, the cost to be borne by the community as a whole, and not in any part by charitable contributions.

3. The complete dissociation of reforms 1 and 2 from Poor-law administration.

4. That secondary and technical education be an essential part of every child's education, and secured by such a reform and extension of the scholarship system as will place a maintenance scholarship within the reach of every child, and thus make it possible for all children to be full-time day pupils up to the age of sixteen.

5. That the best intellectual and technical training be provided for the teachers of the children, that each educational district shall be required to train the number of pupil-teachers demanded by local needs, and to establish training colleges, preferably in connexion with Universities or University colleges.

6. That the provision of educational buildings and facilities be obligatory upon the Local Authority, who shall always retain administrative control of the buildings and facilities so provided.

7. That the cost of education be met by grants from the Imperial Exchequer, and by the restoration of educational endowments; and, further, having regard to (*a*) the necessarily increasing cost of education mainly owing to the demands which organized labour is now making on behalf of the children; (*b*) the increasing value and notoriously undemocratic administration of the wealthy University and public school endowments.

This Congress places on record its regret at the refusal of the Minister of Education to grant a Royal Commission to inquire into such endowments, and it instructs the Parliamentary Committee to press for the appointment of a Royal Commission to inquire into (*a*) the finances of the Universities and of the great public schools; and to issue a report containing a statement of the history and present value of those endowments which were originally intended for the poor; (*b*) the conditions of scholarships and other aids in Universities and public schools; (*c*) the relations with lower education institutions; (*d*) the government of Universities and public schools; and to bring forward recommendations showing how these institutions may be brought under full public control.

REVIEWS.

Latin Literature.

"The Library of Literary History."—*A Literary History of Rome*, from the Origins to the Close of the Golden Age. By J. Wight Duff, M.A., D.Litt., Professor of Classics, Armstrong College (in the University of Durham), Newcastle-upon-Tyne. (12s. 6d. net. Fisher Unwin.)

The volumes of the "Library of Literary History," with all their merits, are far from equal, but the latest addition materially raises the average, taking rank with the very best of its predecessors. The difficulty of the work is masked by the widespread familiarity with the outlines of the subject and by the mass of materials accumulated by historians and commentators. The writer is under obligation to master the monuments of the language and literature in the light of the best of the multifarious critical comments in various languages, and to cast his conclusions in a fresh form, satisfying in scholarship and in style the expectations of the experts and of general readers alike. Prof. Wight Duff has risen to the challenge. He displays an obvious familiarity with the whole line of Roman writers within his period, and with the results of scholarly investigation of their work and of the conditions of their work; and he steadily regards the national character of the literature, whatever the origin of the materials, and marks the significance of the authors not only in point of genius and of art, but also in relation to their environment and to their predecessors and successors, so as to display fully the individual characteristics, activities, and influences in their historical connexions. The method of treatment is signally systematic, pointed, and lucid. Many passages in translation, sometimes in prose but oftener in verse, show a delicate appreciation of both languages and a skill of rendering that suggest the hope that Prof. Duff will one day set before us poets and prose-writers in a worthy English dress. The volume is clearly the outcome of prolonged, assiduous, and competent labour. It is indeed a chronicle of Roman literary industry, but it exhibits the Roman mind at work in all the diverse conditions of a growing and varying civilization. Latin dead, forsooth! The Roman authors live and breathe on every page. The book is one of the most notable of modern contributions to English classical scholarship and to the popularization of classical literature.

The introduction sketches the environment, the geographical

and tribal origins, the history and qualities of the language, and the character and religion of the people. Prof. Duff walks warily among the learned speculations about the relations of Rome with Etruria and the kinship of the Latins with other Italic tribes. He examines judiciously the dialectal influences, the qualities and features of the plebeian and literary styles, and the lines of the real linguistic progress: "the great literary effects of Latin are secured by sheer genius after generations of painstaking experiment." He traces the domination of the practical throughout the Roman character and the Roman religion. His conclusion is this:

> The national character, examined here from several standpoints, inspires all Roman work. What it was in family, in State, in religion, it was in feats of engineering and in written compositions. Serious, practical, dignified, it engraved itself upon the literature, which exhibits the same ultimate qualities as a Roman law, a Roman road, a Roman triumphal arch, an aqueduct across the Campagna, the Pont du Gard near Nîmes, the wall from Tyne to Solway. There is the same solidity, the same steadfast purpose, the same gift of execution. The undeviating line of a Roman *uallum* or aqueduct is no more typical of fixity of purpose than the straightforward enumeration of a magistrate's *cursus honorum* in an inscription, than Roman victories won by tenacious perseverance despite of failure, or than the definite aim—often a strong didactic aim—which characterizes so much of the best that was written in Latin. The literature, like all the products of Roman skill, has a reasonableness and dignity which command the reverence of the ages.

After these preliminaries, the work falls into two divisions—the earlier literature of the Republic, from the origins down to B.C. 70, and the literature of the Golden Age, B.C. 70 to A.D. 14, the latter occupying twice the space of the former. We have not detected any hint that a second volume is to follow—a volume that would be quite as much technical as literary, dealing not only with pure literature, but also with law (and, after all, the books of the law constitute the greatest legacy of Rome to the modern world), patristic theology, scholastic philosophy, and logic; but we are glad to note that Prof. Duff lays stress on the continuity of the language, modified and adapted to new movements and new needs—decadent, no doubt, in certain aspects, yet still preserving features of high interest and importance. "This ought to appear a truism; yet it is a reassertion needful at intervals because the restrictions of purists have not infrequently conveyed the impression that Latin is negligible after a certain more or less limited period called the 'classical age.'"

The written Latin remains of the first five centuries of the city are of subordinate literary interest, beautiful neither in thought nor in form; but, in addition to their linguistic value, they have great historical importance as indexes to social, practical, and religious aspects of Roman life, and as forerunners of the later literature. The invasion of Hellenism is followed out in its gradual effects on Roman thought "as the moulder of philosophy, oratory, education, and literature." Among the pioneers of Roman poetry Prof. Duff treats very fully and instructively of Ennius, "the precursor of Lucilius in satire, of Lucretius in didactic, of Virgil in epic"—"the greatest figure in the serious thought of Rome before the days of Lucretius and Cicero." The chapter devoted to Plautus and Terence, individually and in comparison and contrast, and generally to the comic drama, is a masterly critical presentation, luminous and well balanced. The interest droops over Roman tragedy in Pacuvius and Accius, but rises again in the strong individuality and representative character of Lucilius (whose deep influence on Horace is not to be forgotten); and again it falls when we come to the early historians, and is scarcely revived by the more rapid mastery of technique by the pre-Ciceronian orators. But all the time the chain of development is in constant process of demonstration.

The "Golden Age" covers two periods, the Ciceronian and the Augustan, and embraces "the greatest poetry, the greatest oratory, and, save for Tacitus, the greatest history written in Latin." In the first period the chief names are Lucretius and Catullus, Cicero and Caesar. The three pillars of the fame of Lucretius are "his scientific system, his attitude to religion, and his poetic power." If there is anything amissing in the analysis it is a quite adequate indication of the poet's intellectual grasp: true, Prof. Duff remarks that his verse is "undeniably strong and majestic," that it assumes "a tribunician vehemence" when it assails the bondage of religion, that much power is exhibited in the fifth book, that his forcible exposition of the Democritean conception of the ultimate constitution of the universe compels attention, and so forth; but what we have in mind is the decisively masculine grasp that controls the thought into pregnant expression, final and irrecusable, such as is exemplified in Shakespearean scenes of strenuous energy. The treatment of Catullus, which is discriminatingly appreciative, is diversified with original verse translations of charming delicacy. Cicero is a large subject, "incomparably greater" as a literary than as an historical figure—"the supreme index to his age." He fitted Latin prose "to be the vehicle of thought for centuries and the basis of expression over a wide area of modern Europe." Prof. Duff sketches his career, deals thoughtfully with his poetry, speeches, and epistles, and examines shrewdly his treatises on political science, rhetoric, and philosophy. There is little room for freshness in the literary handling of Caesar, but Prof. Duff shows steady judgment at the critical points. It seems to us, indeed, a false note to "confess to weariness if one reads the 'Commentaries' in the mass." The test is not fair: it would similarly disparage Homer or Le Sage. This is a rare example of incautious acceptance of critical commonplace by the author. A few useful pages are devoted to Sallust. "In two ways Sallust marked an advance among Roman historians: he abandoned the annalistic method which culminated in Caesar, and he raised the literary level of history." He "turned historical prose into the path along which it was developed by Livy and Tacitus."

The Augustan age is handled throughout with the thoroughness, care, and judgment displayed in the earlier pages: Virgil, Horace, Tibullus, Propertius, Ovid, prose being represented principally by Livy. We must sacrifice our notes, and recommend our readers to go to the book itself. We need remark only that Prof. Duff, with all his caution, is not exempt from the usual misfortune of classicists that find it necessary to deal with subjects involving technicalities outside the strictly literary sphere. "Jurisprudence," he writes, "came virtually to depend on imperial licence. The right to give valid legal advice (*responsa*) was henceforth regulated by the consent of the *princeps*." The statement, so far as the expression is clear, exhibits a grave misapprehension, which the succeeding sentences plainly unveil, though they do not give a clue to the real significance of the change. However, there is no lapse at all comparable with this in the 700 pages of the masterly volume.

Oxford University Reform.

Principles and Methods of University Reform: Report of the Hebdomadal Council, with an Introduction submitted on behalf of the Council by Lord Curzon of Kedleston, Chancellor of the University. (1s. 6d. Clarendon Press.)

In April last year a Memorandum, by Lord Curzon, was issued by the Oxford University Press indicating "the character of the problem of internal reconstruction which the University was known to be willing and anxious to discuss," and inviting the attention of the Hebdomadal Council "to various proposals that had favour with different sections of academic thought or appeared to be supported by influential opinion." The present report "contains the subsequent history of those proposals, as examined and reported upon in the first place by Committees of Council, and then discussed and accepted (or modified) by Council itself"; and the present introduction, written by Lord Curzon on behalf of the Council, "is intended to explain the general principles upon which the Hebdomadal Council has proceeded, and the nature of the recommendations which it now submits to the University." During the sixteen months the Committees of the Council have held a hundred and five sittings and the Council itself twenty-three special sittings. Lord Curzon has himself presided over many of these meetings. The decisions have mostly been arrived at either unanimously or by large majorities.

The object of strengthening and popularizing the internal government of the University involves a readjustment of the Hebdomadal Council, Congregation, and Convocation. It is proposed that the Council shall consist of five *ex officio* members and eighteen members elected by Congregation, the three "Orders"—heads of houses, professors, and ordinary members of Convocation—being abolished. Congregation is to be made "a genuine organ of the teaching and administrative elements in the University and colleges," by the abolition of the qualification of mere residence except in the case of members at present so qualified, by admission of such members of Convocation as hold certain offices in the University. Convocation is to remain "the supreme legislative authority," with certain important restrictions, and is to be made more widely representative. No doubt, these proposals are in the right direction. It remains to be seen whether Convocation will have the sense to accept them.

The proposals for the reconstitution of the Faculties and for the creation of a general Board of Faculties are of far reaching importance: "their effect will be to give to the Faculties a considerable but legitimate influence in matters of study and education, without however impairing the ultimate authority of Convocation," and "the scheme may be regarded as a measure of devolution which should do much to simplify the business and machinery of the University." So much for the internal government and organization of teaching in the University.

Compulsory Greek is eliminated from the Entrance Examinations, and substitutes are proposed: Council decided "that English composition, elementary mathematics, and one ancient language should be demanded of all candidates, and that they should be required to take one other language and another subject taken from a wide choice." The admission of "poor men" in large numbers is meant to be facilitated, but the difficulties appear to be not easy of solution—difficulties of expense and of residence and instruction: hostels are not much in favour. Finance is a complicated business, but some rearrangements suggested may work an improvement. College Fellowships are to be brought more into profitable relations with the work of the University. The proposals for a curriculum suitable for a business career are not complete in details, but, as we indicate elsewhere, there is no evidence of anything like adequate inquiry whereon to base conclusions. Altogether the results, though showing a certain advance, do not seem to have issued from any comprehensive appreciation of the actual condition of educational thought and of the marked tendencies of educational evolution. The hand of the outside reformer will scarcely be averted.

GENERAL NOTICES.

CLASSICS.

"Pitt Press Series."—*Herodotus. I, Clio.* Edited by J. H. Sleeman, M.A., late Fellow of Sidney Sussex College, Cambridge. (4s. Cambridge University Press.)

Mr. Sleeman follows the plan of the late Dr. E. S. Shuckburgh's editions of the later books of Herodotus in the Pitt Press Series. In a considerable introduction he sets forth such details of the author's life as seem fairly well established, discourses on the earlier Greek historians and Herodotus's debt to them, the merits of Herodotus (choice of subject, interesting treatment, and literary style), and the vexed question of his dialect; and then summarizes the present book, with critical remarks on the author's method and accuracy. Each chapter of the text has a headline indicating the subject under treatment. The notes, which are full and clear, deal chiefly with points of interpretation and of Herodotean usage. A historical and geographical index gives ample information about persons and places mentioned in the text. A scholarly and attractive edition.

Second Latin Book. Being the Second Year of a Two Years' Course Preparatory to Caesar. By C. A. Williams, M.A., sometime Scholar of Queens' College, Cambridge, formerly Classical Master at Hulme Grammar School, Oldham. (2s. 6d. Rivingtons.)

This volume is a continuation of the author's "First Latin Book," and is constructed on the same lines. It goes through the grammatical forms systematically, presenting sentences for translation and retranslation, free composition, easy continuous prose, recapitulatory exercises, and reading passages from Caesar's "Gallic War" adapted to the needs of pupils, and illustrating rules of syntax under consideration. Great stress is properly laid on oral practice. Some further extracts from Caesar are appended for rapid reading; also a summary of the grammar; and the vocabularies, Latin-English and English-Latin, are ample and careful. The plan has been thoughtfully devised and capably worked out. The two volumes cannot fail to lay a broad and deep foundation, not only for Caesar, but for other Latin literature.

MATHEMATICS.

Concurrent Practical and Theoretical Geometry. Parts I–III. By W. J. Potter, M.A. Cantab., Second Master, The Roan School for Boys, Greenwich. (4s. 6d. net. Ralph, Holland, & Co.)

Parts I–III of Mr. Potter's valuable school manual form in combination a text-book of considerable size; each Part, however, is also published separately. The complete scheme of the work includes a fourth section devoted to Solid Geometry, but we understand that this will be issued only as a separate volume. The author is an experienced teacher and an interesting exponent of modern ideas. His object throughout is to instruct in three stages:—(1) to introduce fresh ideas by means of practical work, in the course of which it is hoped that the new truth to be imparted may be evolved by the pupil; (2) to furnish a formal, clear, and concise demonstration of the proposition under consideration; and

(*Continued on page* 416.)

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(3) to show some of its applications through the medium of practical and theoretical work. For several years the general plan of study suggested in this course has stood successfully the test of actual use in the classes of various schools; details have, from time to time, been modified as the result of experience. Parts I and II have already formed the subject of notice in these columns; Part III, now before us for the first time, is carried out on precisely similar lines, and treats of proportion (from an algebraic standpoint), of similar figures, and also, to some extent, of the rudiments of trigonometry, projection, and other subjects of more advanced instruction generally included in the school curriculum of the present day.

First Stage Mathematics. Edited by William Briggs, LL.D., M.A., B.Sc., F.R.A.S. (2s. Clive.)

This is one of the recent issues of the University Tutorial Press, and is marked by the same general characteristics as are noticeable in the numerous elementary text-books published primarily for the students of the University Correspondence College. The present work is devoted to the algebra and geometry required by the Board of Education from first-stage candidates. The text is, in general, well adapted to the needs of students working with but little help from a teacher, many of the suggestions and explanations being excellent; some parts, however, are unsatisfactory, as, for example, the clumsy definitions of square and cube roots, and the very poor discussion of the "Remainder Theorem." The diagrams are small and only moderately finished, but they are sufficiently clear for ordinary purposes.

(1) *Spezielle Ebene Kurven.* Von Dr. Heinrich Wieleitner. (M. 12.)—(2) *Komplex Symbolik.* Von Roland Weitzenböck. (M. 4, 80.) (Leipzig: Göschen.)

Both volumes belong to the extensive series of mathematical text-books published in the "Sammlung Schubert." We may fairly anticipate that to the English reader who is at all conversant with German they will often prove of great value as works of reference: it is, however, to the German student of mathematics that they will naturally be most useful for connected study. In Dr. Wieleitner's work on special curves, the subject of which lends itself to profuse illustration, care has evidently been ungrudgingly bestowed on the drawing and reproduction of the numerous diagrams.

SCIENCE.

Radiochemistry. By A. T. Cameron, M.A., B.Sc., Lecturer in Physiological Chemistry, University of Manitoba, ex-Carnegie Research Fellow, and 1851 Exhibition Research Scholar. (2s. 6d. net. Dent.)

If the science of radioactivity has been in existence for only half a generation its devotees have been busy and acute, for "no fewer than twenty-six new elements have been discovered by radioactive methods," and "the main doctrine of the science, the successive degradation by their spontaneous disintegration of certain elements of atomic weight to others of lower atomic weight, may be held to be proved." The present volume treats the subject from a chemical standpoint, the physical side being introduced only so far as is necessary for the explanation of the special experimental methods. It presents a simple, lucid, exact, and accurate account of existing knowledge of the chemical properties of the radioactive substances and of their chemical effects, and of the principal methods whereby such knowledge has been attained. The account of recent attempts at transmutation and the survey of the chemical evidences of transformation are specially interesting; and brief chapters are added on radiogeology and on the medical applications of radiations. A very useful bibliography is appended. There are portraits of Mme Curie (frontispiece), Sir William Ramsay, and Prof. Rutherford.

Science from an Easy Chair. By Sir Ray Lankester, K.C.B., F.R.S. (6s. Methuen.)

The volume contains forty-three papers selected from a series contributed to the *Daily Telegraph* during the years 1908–9. The letterpress has been revised and corrected, though occasional traces of the original isolation of the several articles appear in repetition, which, however, will do no harm. The subjects, which are most various, belong generally to the domains of natural history, astronomy, prehistoric archæology, the investigation of disease, and the story of extinct animals. Not a page of the book but is fascinating and instructive, and the scientific accuracy of the treatment is guaranteed by the name of the author. The style is easy and popular. There are eighty-four illustrations, many of them of exceptional interest. While the volume should be placed within the reach of young folk of an inquiring turn, their elders will find it full of interest and suggestion.

The Elements of Hydrostatics. By C. M. Jessop, Professor of Mathematics, and G. W. Caunt, M.A., Lecturer in Mathematics, in Armstrong College, Newcastle-on-Tyne. (2s. 6d. Bell.)

This is the Hydrostatical portion of Prof. Jessop's "Elements of Applied Mathematics" reproduced in an extended form and with thorough revision. Mr. Caunt has carried out the alterations with great judgment and added two new chapters. The treatment stops short of the differential calculus. The examples are well chosen and abundant; the answers are appended. There are fifty-seven figures.

MODERN LANGUAGES.

Italian Conversation Grammar for Foreigners. (6 fr. Florence: Chisini.)

"This book has been written and printed in Florence expressly for the Chisini School of Languages. The language used is pure Tuscan Italian as spoken in everyday life." There is no English in the book: all the explanations are in Italian. First we have the phrases most necessary for the traveller in Italy—the usual salutations and compliments, the ways of expressing the ordinary requirements of social life (calling a cab, ordering a room or a meal, shopping, and so forth)—and then the topics of conversation in all sorts of situations (home, family, trade, politics, sports, &c.). In this way, simply and naturally, the book familiarizes the reader with the more essential words, phrases, and idioms of Italian. The practical purpose is always in view. The general arrangement has fresh features—the verbs are handled so as to facilitate a grasp of them, and much attention is given to the advantages of comparison and contrast. The pronunciation is indicated with persistent care. The exemplification is most varied and appropriate. A very full appendix on the verbs may also be had separately (1 lira). The printing appears to an English eye somewhat crowded; but this will not deter an enterprising student. We should advise readers to master the elements of grammar and some vocabulary before taking up the work. With such preparation they will be enabled to obtain great advantage from a patient perusal of its solid pages.

A Brief History of German Literature. By George Madison Priest, Preceptor in Modern Languages, Princeton University. (4s. 6d. net. Fisher Unwin.)

"Both in its general outline of the subject and in its treatment of authors and periods," the volume "is essentially the embodiment of an attempt to reproduce for the benefit of English readers," Prof. Gotthold Klee's manual, "Grundzüge der deutschen Literatur-geschichte." It is not, however, a mere translation: Mr. Priest has omitted, added, and altered so far as he has thought desirable in order to meet the requirements of English-speaking students. It is written in a plain and lucid style, and disposes of the subjects in reasonable proportions, except that one might desiderate a more ample treatment of the later literature, say of the past half century. The treatment shows a deliberate and sober judgment, and the space saved from theorizing affords opportunity for a large representation of the works of the more important authors. Mr. Priest has usefully adapted the work to school purposes. He adds a literary map of Germany, a chronological table, and a largely extended index—all of which are most serviceable adjuncts.

SHAKESPEARE.

Messrs. Macmillan have begun to issue "The Children's Shakespeare"—"Scenes from the Plays; with Introductory Readings from Charles and Mary Lamb's 'Tales from Shakespeare.'" We have three books: *The Tempest*, *Macbeth*, and *A Midsummer Night's Dream* (4d each). The text is very handsomely printed; and composition exercises and brief biographical notes are appended. A few foot-notes are placed under the text. Each book has four good illustrations. An excellent and most attractive series.

Messrs. Henry Frowde and Hodder & Stoughton are publishing "Plays of Shakespeare" in the Oxford Elementary-School Books Series. We have *The Tempest* and *Macbeth* (6d. each). A glossary is appended to each play; but there is neither introduction nor notes. The text is beautifully printed, and the binding is strong and flexible. Each volume has a coloured frontispiece. A very agreeable series.

Mr. Stead has added to the series of "Stead's English Classics" *The Picture Shakespeare* (3d. net), consisting of fifteen illustrated selections from eight of Shakespeare's plays, with prose introductions from Lamb's "Tales" for recitation and reading, and questions for composition. The matter has been arranged by Robert S. Wood, and the pictures are by Brinsley Le Fanu. The Droeschout portrait of Shakespeare is reproduced as frontispiece. The double columns on some pages break the verse-line and occasionally the type seems dim; but, after all, the book is a wonderful threepennyworth.

HISTORY.

Readings in Modern European History. By James Harvey Robinson, Professor of History, and Charles A. Beard, Adjunct Professor of Politics, Columbia University. (2 vols., 6s. and 6s. 6d. Ginn.)

These volumes illustrate the chief aspects of European history during the eighteenth and nineteenth centuries, and are primarily intended to accompany "The Development of Modern Europe," recently published by the same scholars in two volumes. Hitherto, the teacher has been at a loss to provide "readings from original sources" to supplement oral teaching, and so to secure a lively, yet impressive, presentation of the facts; but this deficiency can now be made good, for these volumes furnish just the material required. The authors have taken a very broad view of the subject, and have drawn upon nearly all the salient documents relevant to their purpose. The passages are judicious in length, pertinent, and interesting. Intercalary critical remarks fill up the gaps in the narrative, so that the whole work forms a valuable commentary on the period. Besides the extracts illustrative of military and naval history, we find a succinct account of the development of science, art, and philosophy—*e.g.*, Section 29 (Vol. I) describes "How the Scientific Discoveries produced a Spirit of Reform," and then follow selections from Rousseau and the leading Encyclopedists. Frederick the Great's everyday life is ruthlessly laid bare. Almost the last selection is from Mr. Sidney Webb's tract on "Fabianism," and Prof. J. B. Clark's arguments

(*Continued on page* 418.)

FOOD AND DISEASE.

"There are not a few diseases which can be cured by the use of proper diet alone."—THOMAS SYDENHAM, 1625–1689.

When Thomas Sydenham, who was called "The English Hippocrates" to mark his pre-eminence over the other physicians of the seventeenth century, wrote those words he enunciated a theory whose full significance the most modern doctors are now teaching. Day by day they are impressing on their patients that drugs are not the sheet-anchor of medicine as they once believed. Day by day they are teaching that the science of cure is far more a matter of food than of medicine.

The foods for curing disease must of necessity be bland and easy of digestion. They must be reconstituent in their nature and revitalizing in their effect. They must thus combine the best elements of food and tonic without the grave drawback of mere stimulation which characterizes so many so-called tonics and invalid foods.

Pre-eminent among the tonic foods which comply with these requirements is Sanatogen. It is all food with no waste, the greatest reconstituent and the most revitalizing preparation known to Science. For this reason it is the most widely prescribed tonic food in the world.

AN OPEN SECRET.

It was universally adopted by the medical profession because no secret was made of its composition, and every doctor was told at the very outset that it is a combination of milk proteid, the most nutritious element of milk, and glycero-phosphate of sodium, the active principle of the nervous system. These substances are not merely mixed, as one might do in a mortar, but are chemically combined by a process protected by Royal Letters Patent, to form a new compound, each of whose constituents reinforces the action of the other.

For this reason, Sanatogen has a wide range of employment. Thus, it acts like a charm in the long list of nervous symptoms of which those subject to strain constantly complain. Among such symptoms are insomnia, treacherous or failing memory, depression of spirits, lack of concentration, diminished capacity for work, and a greater susceptibility to fatigue. With its use each of these symptoms disappears, and the patient is able to resume his work as well as, if not better than, he ever was before. The same is true in that complicated nervous condition which doctors call neurasthenia.

Testimony to Sanatogen's superlative merits has been borne by over twelve thousand physicians. Among them are the physicians to nine European Sovereigns. These distinguished practitioners include Dr. Ott, King Edward's physician in Marienbad, the physicians to the Emperor of Austria, the King of Italy, the King of Saxony, the King of Württemberg, the Queen Mother of Italy, and the Czar of Russia.

A ROYAL DOCTOR'S VIEWS.

The last named, Dr. Ferchmin, states categorically he has used it in his own family, for he writes: "My daughter, who was very nervous and anæmic, has been greatly benefited by the prolonged use of Sanatogen. Her appetite improved, her weight increased, and the colour of her skin became healthier."

It is likewise used in ever increasing quantities by the men and women who are doing the world's work.

Although individual names may not be mentioned, it may be stated that it is constantly taken by members of the Royal Family, whose social duties make heavy demands on their constitutions. It is used by great divines, like the ex-Bishop of Norwich and Father Bernard Vaughan; by well-known Members of Parliament, like Sir Luke White and Sir Gilbert Parker; by eminent Barristers and Solicitors, like Mr. Marshall Hall, K.C., M.P., and Sir William Bull, M.P.; by celebrated Writers, like Mr. Hall Caine and Madame Sarah Grand; by Artists of renown, like Mr. B. W. Leader, R.A., and Mr. Walter Crane; and by popular Athletes, like Mr. C. B. Fry and Mr. Rhodes, &c.

Sanatogen may be obtained of all chemists in tins, price 1s. 9d. to 9s. 6d. An interesting booklet dealing with the various diseases in which it is successfully used will be sent post free, on application to the Sanatogen Company, 12 Chenies Street, London, W.C., mentioning *The Educational Times.*

[Advt.

"ALL SORE THROATS ARE SUSPICIOUS!"

DANGER OF INFECTIOUS DISEASE.

If these words, from the L.C.C.'s new pamphlet "Health Hints to Parents," were laid to heart by every one, a great deal would be done towards stamping out infectious diseases like Diphtheria, Scarlet Fever, Measles, Mumps, &c., all of which begin with what appears to be an ordinary sore throat.

The golden rule is: *Never neglect Sore Throat.* When this rule is followed there is every chance that any infectious disease will be effectually prevented. On the other hand, if a Sore Throat is left to "cure itself," the disease it may have indicated will have time to establish itself in the system.

THE CAUSE OF SORE THROAT.

The reason for this is that both ordinary Sore Throat and the grave diseases of which Sore Throat is a symptom are of germ origin. That is to say, they are caused by minute atoms of plant life called "germs" which we inhale from the air and which multiply with great rapidity in the mouth and throat. If these germs are destroyed, no harm follows, but if the germs are allowed to go on increasing in number, their fermentative action produces certain toxins which get into the blood stream and thus set up disease.

It will be obvious, then, that the proper treatment of Sore Throat must involve the destruction of germs in the mouth cavity. There is only one effectual method of accomplishing this, and that is by means of Wulfing's Formamint tablets, which both cure Sore Throat and prevent infectious disease by rendering the mouth and throat entirely free from germ-growths.

THE CURE OF SORE THROAT.

To take a practical instance from the many cases which have been recorded in the medical press: A well known physician states, in the *General Practitioner,* July 31, 1909, that he had a case where two people, a mother and child, had been living in the same room with a child who died of Diphtheria. They got Sore Throat, which showed that they were sickening for the same disease, but Formamint tablets were prescribed, *their Sore Throat was cured in three days, and both escaped infection.* "Since adopting Formamint as a preventive," he writes, "I have had 17 cases of Diphtheria reported. There are many contacts in connexion with these cases who were all given Formamint for use daily, and *not a single case has occurred amongst them.*"

A Medical Officer of Health writes, in the *Practitioner* for December, 1907: "I have never had Sore Throat myself since I began to use Formamint tablets, although I suffered periodically before."

These two cases will suffice to show what is thought of Formamint by the medical profession. But patients are as enthusiastic about Formamint as physicians themselves. For example, Mr. Bernard Partridge, the famous *Punch* Cartoonist, writes:—

"I have used Formamint on and off for some time and find it most excellent for the throat." Mr. Justin McCarthy, the well known writer and ex-M.P., writes: "Wulfing's Formamint tablets have quite cured the throat trouble from which I suffered." Lady Malcolm of Poltalloch states: "Wulfing's Formamint cured my Sore Throat in one night."

Wulfing's Formamint is constantly used by the Right Hon. Arthur J. Balfour, the Right Hon. Earl Cawdor, the Right Hon. the Lord Kingsale, Sir Gilbert Parker, M.P., Lady Desborough, &c.

TRY FORMAMINT FREE.

Every one who realizes that "all sore throats are suspicious" will make a point of keeping Wulfing's Formamint always in the house ready for instant use. It is sold by all chemists at 1s. 11d. per bottle, but care should be taken to ask for *Wulfing's* Formamint as its success has led to the production of many worthless imitations. Formamint is manufactured by A. Wulfing & Co., 12 Chenies Street, London, W.C., who will be pleased to send every reader mentioning this paper a free sample of Formamint and an interesting booklet.

[Advt.

against Socialism are quoted in a condensed form as a reply. The authors are to be congratulated on a valuable piece of work, accomplished with assiduous care and with sympathetic insight.

Senates and Upper Chambers. Their Use and Function in the Modern State, with a chapter on the Reform of the House of Lords. By Harold W. V. Temperley, M.A., Fellow and Assistant Tutor of Peterhouse, Cambridge. (5s. net. Chapman & Hall.)

This volume comes opportunely, in view of the need for definite and accurate information about the subjects it deals with. The reform of the House of Lords is not the immediate political question, but it is closely related, and will no doubt come on the carpet before long as a substantive issue. Mr. Temperley's aim is "to attempt a general survey or synthesis, so far as such a process is possible, of the Upper Chambers of the English-speaking world and of the Continent," with the object of finding out how far these institutions are comparable to our own, and what lessons their experience can teach us. A large amount of detailed information about the composition and powers of the chief Upper Chambers of the world is added in appendixes: this cannot fail to be most serviceable. Mr. Temperley points out very clearly and most usefully the dangers that beset comparisons of Upper Chambers in different countries. Neither his own suggestions of reform of the House of Lords nor his criticisms of other proposals appear to be very effective. The value of the work lies in the ample provision of information as to the facts and in the historical handling of the comparison of different institutions. The gross blunders of eminent statesmen in discussing the subject in both Houses emphasizes the opportuneness of the volume.

BIOGRAPHY.

The Black Prince. By R. P. Dunn-Pattison, M.A. (7s. 6d. net. Methuen.)

Mr. Dunn-Pattison disclaims original research, but he has made diligent and discriminating use of the English and French chroniclers of the fourteenth century, of the best modern works bearing on his subject, and of the calendared Rolls and such-like material. He writes agreeably and forcibly, if not with any cultivated grace of style. His object has been "to present to the general reader a sketch of the Prince's character." Still, the Prince's career must be narrated; and this Mr. Dunn-Pattison has accomplished with great judgment and ability, especially in the description of the numerous military movements—the campaigns in Normandy, Aquitaine, and Spain, with the siege of Calais, and the battles of Crécy, Poictiers, and Najera. He considers that "the Prince was one of the first organizers of the day," that "as a tactician he was as great as his father, and probably greater," and that "as a strategist he surpasses the other great soldiers of the day, Edward III and Du Guesclin." Of course, the question arises how far the Prince's success as a general depended on his subordinates, and particularly on Sir John Chandos. "The conclusion seems to be that Chandos, great soldier as he was, had the supreme honour of teaching the Prince the art of war, but it looks as if in the end the pupil was as good as—nay, better—than the master." There are eighteen illustrations and six maps and plans. The volume ought to be accessible in school libraries for collateral reading during study of the Hundred Years' War.

(1) *The Life of William Ewart Gladstone.* By Herbert Woodfield Paul. (1s.) (2) *The Life of John Nicholson.* By Captain Lionel J. Trotter. (1s.) (3) *King Edward the Seventh.* (7d. net.) (Nelson.)

The first two of these handy little volumes belong to "Nelson's Shilling Library"; the third is issued as an extra volume of "Nelson's Library." (1) Mr. Paul gives a convenient outline of the career of the famous statesman, though the work inevitably suffers from condensation. (2) Captain Trotter's sketch of Nicholson is a very careful and sound piece of work, based on private and unpublished documents. Nicholson, of course, was a wonderful man, and has no need of adventitious honours. The statement that "the capture of Delhi, which crowned his public career, was in itself one of the very greatest achievements of modern warfare," is, unfortunately, open to interpretation in the sense, fostered by assertions of Sir John Lawrence (who was not present at the siege), that the capture of Delhi was due to Nicholson. Nicholson himself put the matter justly: "Wilson has made everything over to the engineers, and they, and they alone, will deserve the credit of taking Delhi." If any one man is to get the credit of taking Delhi, that man was "the dauntless chief engineer" (as Captain Trotter rightly characterizes him), Colonel Baird Smith. (3) The sketch of the life of the late King is popular and agreeable.

Anna van Schurman: Artist, Scholar, Saint. By Una Birch. (6s. 6d. net. Longmans.)

It does seem "a pity that a woman whose career coincided with the great period of the Dutch Renaissance, whose work reflected its ambitions, and whose autobiography to some extent expressed its spiritual aspirations, should continue forgotten"; and Miss Birch's sympathetic memoir will revive interest in Anna van Schurman. "Art engaged her energies till the age of twenty-eight, learning for the next twenty years, and mysticism till her death at the age of seventy-one" (1607–78). She was no great artist, though an industrious and conscientious worker, striving to depict precisely the objects of Dutch interest, but wandering over too wide a field. Under the influence of Voet, the Rektor of Utrecht University, she extended her literary studies from the classical authors to a long row of Semitic languages, one day astonishing the Dutch University dons by producing an Ethiopian grammar. In later life "the Star of Utrecht" turned to religious meditation, fell under the influence of Jean de Labadie, and, after following the migrations of the Labadists, died in the bosom of the Community, at Castle Waltha, in Friesland. It is a striking story, and there is much interest in it not only in the heroine and in the Labadist sect, but also in the many learned and distinguished people she came in contact with, and in the general sketch of Dutch life—literary, social, and religious—during the seventeenth century. There are five portraits of Miss van Schurman and one of Labadie.

MISCELLANEOUS.

Letters of a Modern Golfer to his Grandfather, "being the correspondence of Richard Allingham, Esq.," arranged by Henry Leach (6s., Mills & Boon), is a very interesting and amusing collection. The young hero is an enthusiastic golfer, a student of the science, ever experimenting, and keen to excel. His friends, too, number keen golfers, with differences of age, temperament, and so forth. They visit the famous courses, relate their experiences, and evolve among them a considerable mass of hints on play. There are also lady golfers, and a love story runs along with the golfing exploits. It is a delightful volume, whether the reader is or is not a golfer or a lover.

Messrs. J. & J. Paton have just issued the thirteenth annual edition of their well known *List of Schools and Tutors* (2s.), which has increasingly proved itself an aid to parents in the selection of schools for their boys and girls. It has now well over a thousand pages. All the essential facts about many of the best English schools are set forth, and photographs of most of them are given. There are the usual lists of the scholarships and exhibitions obtainable at the public schools both for boys and for girls, and important information about preparation for the services and professions, engineering, agriculture, the mercantile marine, &c. Separate lists of schools in Scotland and Ireland are given. The classification is very helpful to those that have occasion to consult the volume.

Mr. Fisher Unwin publishes a popular edition of *Professions for Girls*, by T. W. Berry, Director of Education, Rhondda, Glam., late Assistant Director of Education, City of Manchester (1s. net). A preface is furnished by Lady Grove. A comprehensive and practical book.

FIRST GLANCES.

French.

Bell's French Picture Cards. Set I, Elementary. Edited by H. N. Adair, M.A.; drawings by M. Montbard. Packet of 16, 1s. 3d. net.
[Size $5\frac{1}{2} \times 3\frac{1}{2}$ in.; printed in colours. On back of each card, description of picture and *questionnaire*. Pictures simple and not overcrowded; subjects from common life. Very useful.]

Black's Reform French Series.—Lectures et Exercices: (1) Cours Elémentaire, by F. B. Kirkman, B.A. Oxon., L. Chouville, Perse School, Cambridge, and Miss A. Pechey; (2) Cours Moyen, edited by M. P. Andrews, M.A., Senior Modern Language Master, Lancing College. 2s. each.
[Third and fourth volumes in a connected series providing a complete school course. Readings well adapted and varied, with numerous illustrations; exercises full, in usual reform style. Excellent practical manuals.]

Harrap's Shorter French Texts.—Contes des Marins de la Haute-Bretagne (Paul Sébillot), adapted and edited by J. E. Mansion, B. ès L., George Watson's College, Edinburgh (General Editor of the series). 6d.
[In Series A (very easy). Exercises and vocabulary.]

Idioms and Expressions, French, for Everyday Use. By H. M. Maitland. 6d. Simpkin, Marshall, & Co.
[Useful selection, alphabetically arranged.]

L'Ami de l'Enfant: Preparatory Year in French, based on Sounds. By C. P. T., Manchester High School for Girls. 1s. Longmans.
[Good exercise in pronunciation, reading, and conversation. Systematic and careful. Prose and verse. Attractive illustrations by Mary M'Nicol Wroe.]

Longmans' French Texts.—Elementary Series: La Comète, and Pourquoi Hunebourg ne fut pas rendu (Erckmann-Chatrian). Edited by T. H. Bertenshaw, B.A., B.Mus., Assistant Master, City of London School. Teacher's edition, 8d.; pupil's edition, 6d.
[Notes, exercises, vocabulary; with teachers' supplement, containing translation of exercises and recapitulatory exercises. Very serviceable.]

German.

Blackie's Little German Classics.—Der Kampf der Sänger (Hoffmann). Edited by F. W. M. Draper, B.A. Cantab., L. ès L. Paris, Assistant Master in the City of London School, formerly Classical Scholar of Queens' College, Cambridge. 6d.

Heath's Modern Language Series.—Deutsche Patrioten in Russland zur Zeit Napoleons (Ernst Moritz Arndt). Edited by William Arnold Colwell, Ph.D. 1s. 3d.
[Biographical introduction; brief notes; vocabulary.]

Siepmann's German Series, Advanced.—Michael Kohlhaas (Heinrich von Kleist). Adapted and edited by F. W. Wilson, Ph.D. Leip., Assistant Master, Clifton College. 2s. 6d. Key to Appendixes, by the General Editor of the Series (Dr. Siepmann). 2s. 6d. net. Word- and Phrase-book, also by Dr. Siepmann. 6d. Macmillan.
[Welcome addition to an excellent series.]

Volksbücher der Deutschen Dichter-Gedächtnis-Stiftung. Heft 22, Die Frühglocke. By Adolf Schmitthenner. Einleitung von Dr. Richard Weitbrecht (biographical). Geheftet 20 pfg. Hamburg-Grossborstel: Verlag der Deutschen Dichter-Gedächtnis-Stiftung.
["Die Glocken sind verhext." Simple and charmingly told. Well printed and tastefully got up. Portrait of author, and several illustrations by Wilhelm Schulz, München.]

Worttafeln zur Aussprache des Englischen; für die Hand des Schülers. By Prof. Sauer, Essen. 25 pfg. Stierlin'sche Buchdruckerei, Aalen (Württemberg).
[Exemplifies vowel and consonant sounds. Slight.]

Religious and Moral.

Bible Notes. Vol. VI, The Writings of Paul. By Robert S. Franks, M.A. Reprinted from the *British Friend*, 1909. 1s. Croydon: Woodbrooke Extension Committee, 3 George Street.
[Concludes a useful series. Interleaved.]

Bible Reader, The. Part IV, The Message of the Prophets—Solomon to the Captivity. By E. Nixon, late Head Mistress, Junior School, Ladies' College, Cheltenham, and H. R. Steel, late Assistant Mistress, Ladies' College, Cheltenham. 1s. net. Fisher Unwin.
[Plain, simple, and helpful.]

Christians, The First Judgment of the, by the Spirit, Alpha and Omega: an authorized revision of St. Matthew and the History of this Planet, from the First Strata to the End. Written for the Spirit at command by F. W. Cunard. 10s. net. Liverpool: Cunard & Sons, 22 Edge Lane.

Inhumanity, The Teaching of. By Emily Cox, M.A. 2d., post free. *Animals' Friend* Office, York House, Portugal Street, W.C.

Old Testament History. Vol. III, From the Birth of Samuel to the Death of David. By the Rev. J. M. Hardwick, M.A., late Scholar of St. John's College, Cambridge, Bell University Scholar, and Assistant Master at Rugby School, and the Rev. H. Costley-White, M.A., late Scholar of Balliol College, Oxford, Head Master of Bradfield College. 2s. Murray.
[Judicious and instructive.]

Peace and War. (1) Speech by Andrew Carnegie, LL.D., at the Annual Meeting of the Peace Society in the Guildhall, May 24, 1910. (2) War as the Mother of Valour and Civilization. By Andrew Carnegie. The Peace Society, 47 New Broad Street, E.C.

Social Degradation: a Study in Poverty. By Malcolm Spencer, M.A. 1s. net. Student Christian Movement, 93-94 Chancery Lane, W.C.
["The descriptions cover the physical, social, industrial, and religious life." Simple and effective.]

Education.

Birkbeck College Calendar, 1910–11. 3d.
[Large provision of teaching of University standard, especially for evening students.]

Board of Education. Reports for 1909 on the Geological Survey, the Geological Museum in Jermyn Street, the Science Museum at South Kensington, and the work of the Solar Physics Committee. Cd.5267. 9d. Wyman.

Cambridge Local Examinations: Class Lists, July, 1910—(1) Boys, (2) Girls. Examination Papers (July, 1910)—Preliminary, Junior, Senior—with lists of Syndics and Examiners, and Regulations for the Examinations in July and December, 1911. 2s.; by post, 2s. 3d. Cambridge University Press.

Library Work with Children. By Henry Farr, Librarian of Cardiff Public Libraries Paper read at the International Library Congress. Brussels, August, 1910. Cardiff: Educational Publishing Company.

Manchester: the Municipal School of Technology. Calendar for 1910–11. 6d.; by post, 10d.
[Most ample and varied provision.]

Northampton Polytechnic Institute, St. John Street, E.C.: Announcements, Educational and Social, for 1910–11.
["A technical, social, and recreative institute for both sexes." Technological classes numerous and varied. Ample and excellent programme.]

Oxford Local Examinations: Division Lists, July, 1910—Preliminary, 6d. (by post, 7d.); Junior, 6d. (by post, 8d.); Senior, 6d. (by post, 8½d.). Oxford: Parker.

West Riding County Council: (1) Sixth Annual Report of the Education Committee; (2) Handbook of the Education Committee, Part II, Higher Education, Section IX, Preliminary Education of Elementary-School Teachers.

MATHEMATICS.

On the Three Normals to a Parabola from a Point O.
[*Some New Proofs and one or two New Theorems.*]

By W. F. Beard, M.A.

Let OP, OP_1, OP_2 be the normals from O to a parabola, vertex A, focus S, and let them meet the axis at GG_1G_2. Let the tangents at PP_1P_2 meet at TT_1T_2.

(1) SO passes through the centre of the circle TT_1T_2 and is equal to its diameter.

(2) If OH is drawn perpendicular to the directrix, H is the orthocentre of the triangle TT_1T_2.

(3) The centroids of the triangle TT_1T_2, PP_1P_2 are on the axis.

(4) The circle PP_1P_2 passes through A.

(5) If OE, TN are drawn perpendicular to the axis,

$$OE.AS = TN.AN.$$

(6) The radical axis of the circle PP_1P_2 and the nine-point circle of TT_1T_2 is the tangent at the vertex.

(7) The line joining the circum-centre of TT_1T_2 to the orthocentre of PP_1P_2 is parallel to the axis.

(8) (i) If the circle TT_1T_2 meets the axis again at D, and TN, PM are the ordinates of T, P, then DN = AM.

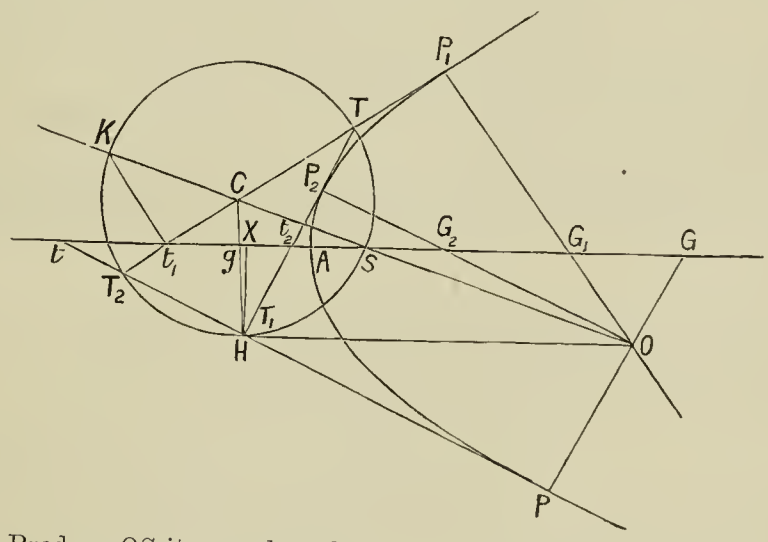
(ii) If g, g' are the centroids of TT_1T_2, PP_1P_2, then

$$Ag' = 2Ag = \tfrac{2}{3}AD.$$

(9) If the circle PP_1P_2 meets the axis again at m, and OE is the ordinate of O, then $Em = 2AS$.

(10) If the radical axis of the circles TT_1T_2, PP_1P_2 meets the directrix at Z, then OSZ is a right angle; and the radical axis of the circle PP_1P_2 and the circle on OS as diameter passes through Z and is perpendicular to SH.

(11) The rectangular hyperbola through TT_1T_2S goes through OZQ (see Prop. 10), has its centre at Y, and its asymptotes parallel to the bisectors of the angle OSE.



(1) Produce OS its own length to K.

Let the tangents at PP_1P_2 meet the axis at tt_1t_2. Join Kt, Kt_1, Kt_2, SK = SO, and $St_1 = SG_1$ (because each $= SP_1$);
therefore Kt_1 is parallel to OG_1;
therefore Kt_1 is perpendicular to P_1t_1, and similarly Kt_2, Kt are perpendicular to P_2t_2, Pt.

Thus the perpendiculars from K on the sides of TT_1T_2 are collinear;
therefore K is on the circum-circle of TT_1T_2 (by the converse of Simson's line).

Also S is on this circle and the pedal lines of S and K, which are the tangent at the vertex and the axis, are perpendicular to one another;
therefore SK is a diameter of the circle TT_1T_2 (for the pedal lines of the ends of a diameter are perpendicular and conversely).

Thus SO = diameter of the circle TT_1T_2.

(2) If H is the orthocentre of TT_1T_2, then KH is bisected by the pedal line of K, that is, by the axis, and KS = SO;
therefore OH is parallel to the axis and H is on the directrix (Steiner's theorem).

Thus, if OH is drawn perpendicular to the directrix, H is the orthocentre of TT_1T_2.

(3) Bisect KS at C. Let CH meet the axis at g.

Then $CS = \frac{1}{2}SO$; therefore $Cg = \frac{1}{2}gH$.

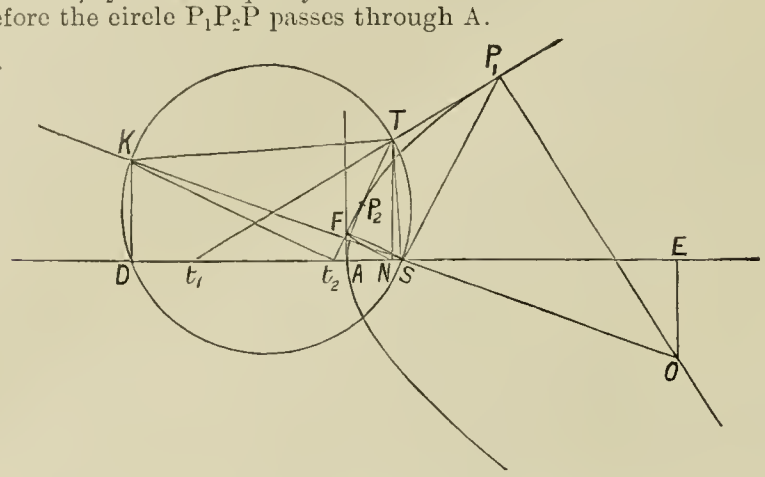
But C, H are the circum- and ortho-centre of TT_1T_2;
therefore g is the centroid of TT_1T_2.

Thus the centroid of TT_1T_2 is on the axis.

The algebraic sum of the ordinates P_1P_2 = twice the ordinate of T;
therefore the algebraic sum of the ordinates of PP_1P_2 = the algebraic sum of those of $TT_1T_2 = 0$, because g is on the axis;
therefore the centroid of PP_1P_2 is also on the axis.

(4) Let the diameters bisecting P_1P_2, AP meet the parabola at Q, Q_1 (not shown in figure).

The ordinate of Q $= \frac{1}{2}$ sum of ordinates of P_1P_2,
the ordinate of $Q_1 = \frac{1}{2}$ ordinate of P;
therefore algebraic sum of ordinates of $QQ_1 = \frac{1}{2}$ algebraic sum of the ordinates of $PP_1P_2 = 0$ from (3);
therefore QQ_1 are equidistant from the axis;
therefore P_1P_2, AP are equally inclined to the axis:
therefore the circle P_1P_2P passes through A.



(5) Let F be the point at which TP_2 meets the tangent at A, and let KD be drawn perpendicular to the axis.

Because $\angle Kt_1T = 90° = \angle Kt_2T$, therefore the circle on KT as diameter passes through t_1t_2.

Thus the perpendicular from the mid-point of KT on the axis bisects t_1t_2, and it also bisects DN, because KD, TN are perpendicular to DN; therefore $Dt_1 = t_2N$ and $Dt_2 = t_1N$.

$KD/Dt_2 = AF/AS$, because triangles KDt_2, FAS are similar (Kt_2 being parallel to FS);
therefore $AF.Dt_2 = KD.AS$; and therefore $AF.t_1N = OE.AS$ ..... (i).

Again $\angle FNA = \angle STF$ (because FNST are on a circle)
$= \angle SP_1T$ (because triangles STP_2, SP_1T are similar)
$= \angle St_1P_1$;

therefore $TN/t_1N = AF/AN$ (from similar triangles);
therefore $TN.AN = AF.t_1N = OE.AS$.

We may also deduce the result directly from the following theorem, which admits of simple proof.

PQ is a diameter of the circum-circle of a triangle ABC; the perpendiculars from ABC on the Simson lines of P, Q respectively are $p_1p_2p_3$, $q_1q_2q_3$, and the perpendiculars from PQ on their own Simson lines are p, q.

Then $p_1q_1 = p_2q_2 = p_3q_3 = pq$.

Now, in our figure, SK is a diameter of the circle $T_1T_2T_3$; TN, AN are the perpendiculars from T on the Simson lines of KS; and KD, SA are the perpendiculars from K, S on the same lines. Thus

$$TN.AN = KD.SA = OE.AS.$$

[Rest in *Reprint*.]

16912. (D. Biddle.)—Prove that one of the roots of the cubic equation, $x^3-3x-\sqrt{3}=0$, equals twice the cosine of 10°.

Solutions (I) *by* W. F. Beard, M.A.; (II) *by* Krishna Prasad De, M.A.; (III) *by* G. W. Border, A. M. Nesbitt, M.A., *and many others.*

(I) $$x^3-3x-\sqrt{3}=0.$$

Compare this with the equation $x^3-3abx-a^3-b^3=0$, the roots of which are $a+b$, $\omega a+\omega^2 b$, $\omega^2 a+\omega b$, $ab=1$, $a^3+b^3=\sqrt{3}$; therefore $a^3-b^3=\sqrt{(-1)}$. Thus

$$a^3 = \tfrac{1}{2}\sqrt{3}+\tfrac{1}{2}\sqrt{(-1)} = \cos\tfrac{1}{6}\pi+\sqrt{(-1)}\sin\tfrac{1}{6}\pi;$$

therefore $$a = \cos\tfrac{1}{18}\pi+\iota\sin\tfrac{1}{18}\pi,$$
and, similarly, $$b = \cos\tfrac{1}{18}\pi-\iota\sin\tfrac{1}{18}\pi;$$
therefore $$a+b = 2\cos\tfrac{1}{18}\pi.$$

Thus $2\cos\frac{1}{18}\pi$ is a root of the given equation.

(II) Let $x=2y$, then the equation becomes

$$8y^3-6y-\sqrt{3}=0.$$

The roots of this equation lie between $+1$ and -1. Making $y=\cos\theta$, this becomes $8\cos^3\theta-6\cos\theta=\sqrt{3}$ or $\cos 3\theta=\frac{1}{2}\sqrt{3}$;
therefore the roots of the given equation are

$$2\cos 10°,\quad 2\cos 110°,\quad \text{and}\quad 2\cos 130°.$$

(III) Let $10° = \theta$. Then

$$4\cos^3\theta-3\cos\theta = \cos 3\theta = \cos 30° = \tfrac{1}{2}\sqrt{3},$$

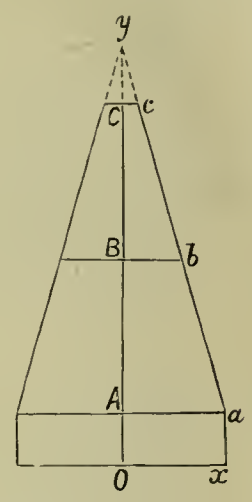
i.e., $$(2\cos\theta)^3-3(2\cos\theta)-\sqrt{3}=0.$$

Hence $(2\cos\theta)$ is a root of $x^3-3x-\sqrt{3}=0$.

12375. (Professor Whitaker.)—Two men wish to buy a grindstone, 42 inches in diameter, and 1 foot thick at the centre. To what thickness at the outer edge should the stone uniformly taper from the centre, that each man may grind off 18 inches of the diameter and both have equal shares, the central 6 inches of the diameter being waste?

Solution (I) *by* A. M. Nesbitt, M.A., *and* Julian Julian; (II) *by* W. J. Ashdown.

(I) I believe that the meaning of the Question is this: Two men use a grindstone, one after the other. The first, in the course of his usage of it, reduces its original diameter of 42 inches to 24 inches, and the second reduces it from 24 inches to 6 inches, after which the grindstone has no further interest either for the two men or for readers of the *Educational Times*. The thickness of the stone being 12 inches at the centre, what was the original thickness at the outer edge, if the two men ground away equal amounts?



If this be the correct explanation, the solution is simple enough. We have

$$OA = 3,\quad AB = BC = 9,\quad Ox = 6.$$

Let $Oy = z$: then equation to xy is

$$x/b+y/z = 1.$$

The volume of the annulus swept out by ABba is

$$2\pi\int_3^{12} xy\,dy;$$

that of the annulus swept out by BCcb is

$$2\pi\int_{12}^{21} xy\,dy,$$

and these are to be equal. Now $\int xy\,dy = 3y^2-2y^3/z$; so that

$$3(21^2-2.12^2+3^2) = 2(21^3-2.12^3+3^3)/z;$$

whence $z=24$. Thus $Oy=24$, $yC=3$, from which $Cc=\frac{3}{4}$. Thus the stone tapers to $\frac{3}{2}$ inches.

(II) Let the stone be divided by a central plane at right angles to the axis. Then, considering the half stone only, we have a cone of height (in inches) $6-x$ resting on a cylinder of thickness x. Having the proportions of all the parts into which the stone is divided, we can, by known methods, calculate the volume of the outer ring or share to be

$$V_1 = \frac{405\pi}{7}(6-x)+297\pi x,$$

and of the inner ring

$$V_2 = \frac{162\pi}{7}(6-x)+\frac{405\pi}{7}(6-x)+135\pi x.$$

Equating $x=\frac{3}{4}$, and $2x=1\frac{1}{2}$ inches, the width of edge required.

But there is a general solution of a problem of this kind, depending on the properties of concentric rings of a cone. Let any right cone of indefinite extension be divided into concentric rings of equal width, the central core having its radius equal to the ring width, and being in fact the first ring, the others being numbered 2nd, 3rd, &c., as we proceed outwards. It is convenient to take the volume of the apical cone on the central core as unit volume, and to express the height of any cone in multiples of the height of this apical cone.

The volume of any ring is given by the formula

$$V = 6r(h-r+1)-3h-2,$$

where r is the ring number and h is the height of the cone it belongs to.

Thus, for the third ring of a cone of height equal to 5 apical cones, $r=3$, $h=5$, $V = 18\times 3-15-2 = 37$.

That is to say, the volume of the ring is 37 times the volume of the apical cone.

The formula for any set of adjoining rings is

$$V = 6nr(h-r-n+2)+h[3(n-1)^2-3]-[2(n-1)^3+2],$$

where n = the number of rings in the set, and r is used as above for the innermost ring of the set.

For 3 rings ($n=3$) this formula reduces to

$$V = 18r(h-r-1)+9h-18.$$

In the given problem each share equals 3 rings (Nos. 2, 3, 4, and 5, 6, 7), and $r=2$, and 5, respectively; therefore

$$V_2 = 36(h-3)+9h-18,\quad V_1 = 90(h-6)+9h-18.$$

Equating $36(h-3) = 90(h-6)$; therefore $h=8$. Therefore the height of the cone (and cylinder) which makes these shares equal is 8 times the height of the apical cone on the central core, which we know to be $\frac{1}{7}(6-x)$; therefore $\frac{8}{7}(6-x)=6$, $x=\frac{3}{4}$, $2x=1\frac{1}{2}$ inches as before. These formulæ apply to the case of a cone resting on a cylinder of equal base, the cone being supposed extended to enclose the cylinder.

[Rest in *Reprint*.]

16344. (W. J. Greenstreet, M.A.)—In a triangle ABC, $B = C = nA$ Divide the triangle into n isosceles triangles, the equal sides of which are all equal.

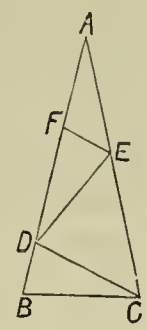
Solution by Professor SANJÁNA, M.A., *and many others.*

Make $\angle BCD = A$; then

$$\angle DCE = (n-1)A.$$

Make $\angle CDE = 3A$; then

$$\angle DEC = (n-1)A.$$



Similarly, the next triangle DEF may be made to have angles 5A, $(n-2)A$, $(n-2)A$; the next 7A, $(n-3)A$, $(n-3)A$; and so on, the last triangle having angles $(2n-1)A$, A, A. Also

$$BC = CD = DE \ldots.$$

16886. (Professor NEUBERG.)—On donne une droite a et deux points B, C non situés dans un même plan avec a. A étant un point quelconque de a, on mène en B un plan β perpendiculaire à la droite AC et en C un plan γ perpendiculaire à la droite AB. Trouver la surface engendrée par l'intersection des plans β et γ.

Additional Solution by Professor NANSON.

The planes β, γ clearly pivot about the perpendiculars from B, C on the planes Ca, Ba, and are obviously connected by a rational one-to-one relation. Their meet therefore traces out a quadric.

16927. (D. BIDDLE.)—Without previous section of any sort, slice off from a given plane angle an exact fourth of it.

Solutions (I) *by* W. J. ASHDOWN; (II) *by* CONSTANCE I. MARKS, B.A., *and* PHILIP T. STEPHENSON, B.A.

(I) Let BAC be the given angle $= \theta$.

Make $AB = AC$;

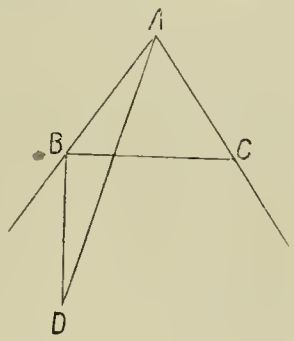
join BC. Draw BD at right angles to BC and equal to AB. Join AD. Then the angle

$$ABC = 90^\circ - \tfrac{1}{2}\theta.$$

$$\angle ABD = 180^\circ - \tfrac{1}{2}\theta.$$

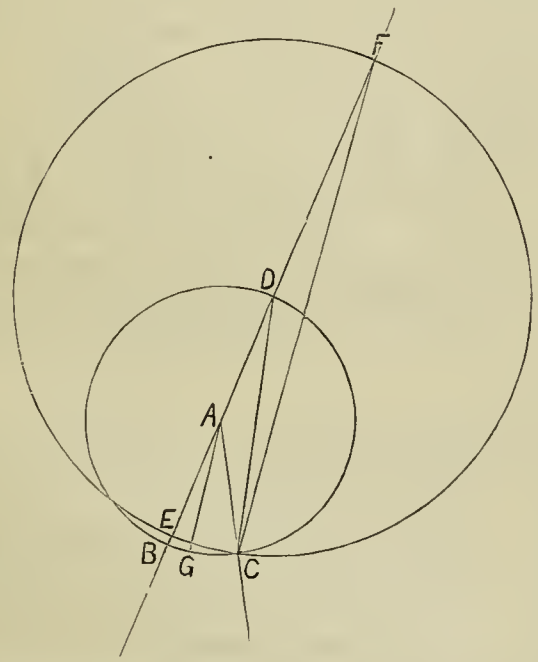
$$\angle BAD = \tfrac{1}{4}\theta,$$

as required.



(II) Let BAC be the given angle. With centre A and any length AB along one arm as radius, describe a circle cutting AC, produced if necessary, at C. Produce BA to meet the circle again at D. Join DC, and with centre D and radius DC ($<$ DB, because DCB is a right angle) describe a circle cutting BD at E.

Produce BD to meet this circle again at F. Join FC and through A draw AG parallel to FC. The $\angle BAG$ is one quarter of the given angle. For it is equal to $\angle BFC$ or $\angle EFC$ (Euc. I, 29). Also $\angle BAC$ is double the $\angle BDC$ (Euc. III, 20). And $\angle BDC$ is $\angle EDC$, which is twice $\angle EFC$ (Euc. III, 20).



Note by the PROPOSER.—The PROPOSER's solution consists in producing DC (Fig., in II) to L, making CL = CA, and joining AL.

16269. (W. F. BEARD, M.A.)—A parabola touches the sides of a triangle ABC at P, Q, R; AP, BQ, CR meet at O. Prove that the locus of O is the ellipse through A, B, C whose centre is the centroid of the triangle ABC.

16599. (W. F. BEARD, M.A.)—The inverses of the circum-circle of a triangle ABC with regard to A, B, C, and with radius of inversion, BC, CA, AB respectively meet BC, CA, AB respectively at X, Y, Z. Prove (1) that AX, BY, CZ meet at a point P on the circum-circle of ABC; (2) that BZ.CY = AB.AC; (3) that, if G, K are the centroid and symmedian point of ABC, then GK is the axis of perspective of the triangles XYZ, ABC. [Note GK was originally misprinted HK.—ED.]

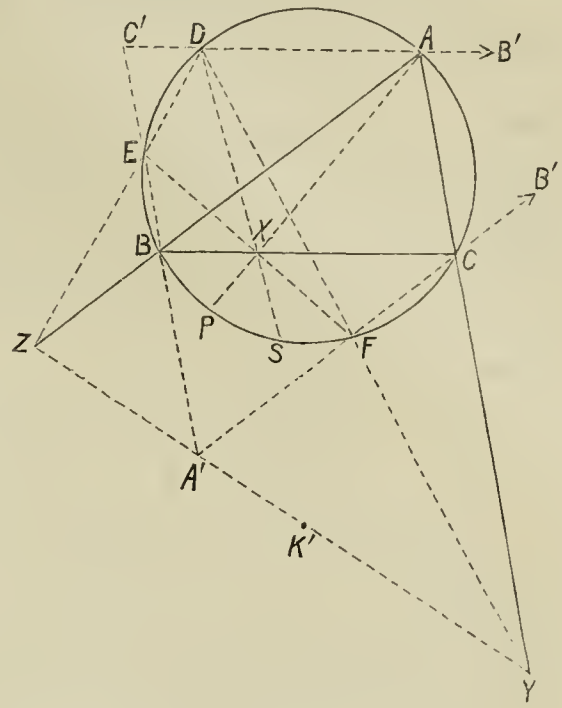
16632. (W. F. BEARD, M.A.)—Prove that the point P mentioned in Question 16599 is the fourth point of intersection of the circum-circle of ABC with the ellipse through A, B, C with its centre at the centroid of ABC.

16872. (W. F. BEARD, M.A.)—A parabola, focus O, is described to touch the sides of a triangle ABC at U, V, W; AU, BV, CW meet at Q. Prove that QO passes through the point P of Question 16599.

Solution by C. E. YOUNGMAN, M.A.

Draw the circle ABC, through the focus S, with chords AD, BE, CF, parallel to BC, CA, AB, forming the triangle A′B′C. (Read for a while in the figure O, P, Q, R in place of P, X, Y, Z.) Then PD, QE, RF meet at S, since, for example,

$$\angle BSP = \angle ABC$$
$$= \angle BCD = \angle BSD;$$



therefore Q, R, A′ are collinear, on the Pascal line of the hexagon CABESF. But QRA′ will serve also as Pascal line of CABBOC; therefore O lies on that conic ABC which touches BA′ and CA′; and this is the ellipse of Question 16269. Note that QCA′ and A′BR are similar triangles, giving QC : CA′ = A′B : BR; *i.e.*, BR.CQ = AB.AC.

Now AE, AF each = BC; hence EF, FD, DE are the inverses in Question 16599. Here the triangles YCD, DBZ are similar; therefore BZ.CY = DB.DC = AB.AC; hence, conversely from above, YZ goes through A′, and so on; and AX, BY, CZ meet on the ellipse G. Let BF meet CE at D′; then, from the cyclic quadrilateral BCEF, the polar of X is A′D′; but, from the Pascal hexagon CABFDE, D′ lies on YZ; therefore YZ is the polar of X and goes through K′, the pole of BC. Hence, exactly as above, P lies on that conic ABC which touches BK′ and CK′, *i.e.*, on the circle ABC.

And lastly, since B (AGCA′) and B (AKCK′) are harmonic pencils, GK and A′K′ meet on BC; that is, YZ and BC meet on GK.

To prove Question 16872.—In cross-ratio

$$\begin{aligned} P(ABCO) &= D(ABCO) && \text{[in the circle ABC]} \\ &= A(DBCQ) && \text{[common transversal BCU]} \\ &= P(ABCQ) && \text{[in the ellipse G]}; \end{aligned}$$

therefore the rays PO, PQ coincide.

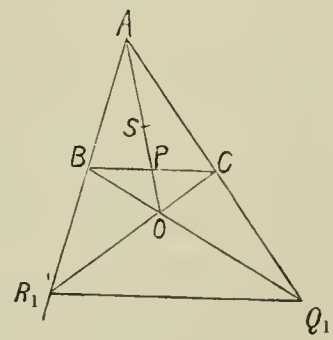
Question 16269 is also solved (1) *by Geometrical Methods by* HENRY RIDDELL, M.E., *and the* PROPOSER.

Assuming the known fact of the concurrence of AP, BQ and CR. We have

$$CQ/CA = BA/BR;$$

hence we have

$$CQ.BR = AB.AC = \text{constant}.$$



Hence the two ranges have the same anharmonic ratio if other pairs of points are chosen, say R_2Q_2, R_3Q_3, R_4Q_4, and the two pencils anharmonically

$$C[R_1R_2R_3R_4] = B[Q_1Q_2Q_3Q_4].$$

Hence the locus of O, the intersection of corresponding rays, is a conic through B and C. But, as the same conic is got by the intersection of AP with BQ, or of AP with CR, it is plainly an ellipse through A, B, C. Also, if Q_1 and R_1 be chosen so that Q_1R_1 is parallel to BC, we have $CQ_1 = CA$ and $BR_1 = BA$, and the centroid S of ABC bisects AO (since O is the centroid of AR_1Q_1). But, by the same reasoning, it bisects the chords through BS and CS, and is therefore the centre of the ellipse.

[Rest in *Reprint*.]

16835. (M. T. NARANIENGAR, M.A.)—ABC is a triangle inscribed in a conic of eccentricity e, and x, y, z the focal distances of A, B, C. Prove that

$$a^2(x-y)(x-z) + b^2(y-z)(y-x) + c^2(z-x)(z-y) = 4e^2.\Delta^2,$$

where a, b, c are the sides and Δ the area of the triangle ABC.

Solution by W. F. BEARD, M.A.

Let $l\alpha + m\beta + n\gamma = 0$ be the equation of the directrix; therefore

$$x = e(l.2\Delta/a)/\lambda,$$

where $\lambda^2 = \Sigma l^2 - 2\Sigma mn \cos A$ .....(i);

therefore $l = (ax/2e\Delta)\lambda$,

similarly for m, n. Hence, substituting in (i),

$$\Sigma a^2x^2 - 2\Sigma bcyz\cos A = 4e^2\Delta^2 \quad \text{and} \quad 2bc\cos A = b^2+c^2-a^2;$$

therefore $4e^2\Delta^2 = \Sigma a^2(x^2+yz-zx-xy) = \Sigma a^2(x-y)(x-z)$.

QUESTIONS FOR SOLUTIONS.

16950. (C. M. Ross, B.A.)—If $(x+iy) = (\alpha+i\beta)^n$, prove that

$$(dx^2+dy^2)/(x^2+y^2) = n^2(d\alpha^2+d\beta^2)/(\alpha^2+\beta^2).$$

16951. (D. Biddle.)—In factorizing N (odd, and of form $6n\pm1$, like a prime), it is sometimes advisable to find a number near it which can be factorized easily. Let $N\pm r = a.b.c\ldots = p.q$, where $p < \sqrt{N}$. Then $N = p.q\mp r$, and when $p-x$ is a factor of $qx\mp r$, it is also a factor of N, for $N = (p-x)[q+(qx\mp r)/(p-x)]$. Find how to select p from the combined factors of $N\pm r$, that x may be a minimum. Ex.:

$$N = 1843,\quad N+5 = 1848 = 2^3.3.7.11 = 21.88,$$

and $N = 21.88-5 = (21-2)[88+(2.88-5)/(21-2)] = 19.97$.

16952. (C. M. Ross, B.A.)—Prove that

$$\begin{vmatrix} 1 & -1 & 0 & \ldots & 0 & 0 \\ 1 & 2 & -1 & \ldots & 0 & 0 \\ 1 & 0 & 2 & \ldots & 0 & 0 \\ \ldots & & \ldots & & \ldots & \\ 1 & 0 & 0 & \ldots & 0 & -1 \\ 1 & 0 & 0 & \ldots & 0 & 2 \end{vmatrix} = 2^n-1.$$

16953. (T. H. Neal.)—A row of counters numbered consecutively from 1 upwards are arranged to read from left to right. Any pair of adjacent counters may be transferred to the right-hand end of the row, and by continuing this process the row may, or may not (according to the number of counters), be completely reversed, so as to read from right to left. Establish formulæ (*a*) to show whether n counters may, or may not, be so reversed; (*b*) to give the number of transpositions required to reverse n counters when n is a number admitting of reversal.

16954. (J. J. Barniville, B.A., I.C.S.)—If

$$(1+x)(1-x^2-x^3)^{-1} = 1+u_1x+u_2x^2+\ldots,$$

prove that $u_{n-6}u_{n-4}+u_nu_{n+1} = u_{2n}$,

and $u_{n-8}u_{n-8}+u_{n+1}^2 = u_{2n+1}$.

E.g., $(n = 10)$, $2.4+12.16 = 200$ and $1.9+16^2 = 265$.

16955. (Professor J. C. Swaminarayan, M.A.)—Solve the simultaneous quadratic equations

$$y^2+z^2-2ayz = p^2,\quad z^2+x^2-2bzx = q^2,\quad x^2+y^2-2cxy = r^2.$$

16956. (Professor Nanson.)—Find the locus of the meet of generators of opposite systems drawn through the extremities of conjugate central radii of the gorge of a hyperboloid.

16957. (Professor Nanson.)—Obtain the Mainardi-Codazzi formulæ in orthogonal surface curvilinear co-ordinates by expressing that, in going round a contour on the surface, the angular displacement of the normal to the surface is zero.

16958. (C. E. Youngman, M.A.)—A circle (Z) rolling on an equal circle (O) will, in two opposite positions (Z), (Z′), cut the resulting cardioide in eight points altogether, besides infinity; prove that these eight lie on a conic ($c^2 = \frac{4}{3}$) having double contact, along ZZ′, with the circle whose diameter is the axis of the cardioide; and that the centre and foci of this conic describe circles.

16959. (V. Ramaswami Aiyar, M.A.)—The circle inscribed in the space between a cardioide and its double tangent touches the latter at O. Q being any point on the cardioide, if q be on the circle such that Oq is parallel to the tangent at Q, show that Qq is a tangent to the cardioide at some point P. [Suggested by, and leading at once to, the fine theorem of Mr. C. E. Youngman, Question 16778.]

16960. (R. F. Davis, M.A.)—A variable point P moves round a conic in such a manner that OP^2 varies as PM.PM′, where O is a fixed point, and PM, PM′ are the perpendiculars from P on two fixed straight lines Δ, Δ'. Prove immediately from the definition that the part of the tangent at P intercepted between Δ, Δ' is divided at P into two segments subtending equal (or supplementary) angles at O.

16961. (F. G. W. Brown, B.Sc., L.C.P.)—A variable triangle described on a given base has the difference of its base angles constant; find the locus of the centre of the nine-point circle, and show that the in-centre lies on a rectangular hyperbola.

16962. (Krishna Prasad De, M.A.)—Show that there are three possible positions of the centre of reciprocation, such that the reciprocal polars of two given conics may be concentric.

16963. (W. F. Beard, M.A.)—P is any point on the circum-circle of an equilateral triangle ABC; AP, BP meet BC, CA respectively in X, Y. Prove BX.AY is constant.

16964. (Professor Neuberg.)—Construire un triangle ABC dont on connaît l'angle BAC, la hauteur AA′ et le produit des segments A′B, A′C de la base.

16965. (H. J. Raymond,)—Give a simple geometrical construction without straight lines, for the centre of any given circle.

16966. (M. T. Naraniengar, M.A.)—Given the centre of gravity, the centre and radius of the circum-circle, find the locus of the symmedian point.

16967. (Professor Sanjána, M.A.)—A, B, C, D being four coplanar points, and θ, ϕ, ψ standing for $\angle$(DBA + DCA), $\angle$(DAB + DCB), $\angle$(DBC + DAC) respectively, prove that

$$2bcqr\cos\theta = b^2q^2+c^2r^2-a^2p^2,\quad 2carp\cos\phi = c^2r^2+a^2p^2-b^2q^2,$$
$$2abpq\cos\psi = a^2p^2+b^2q^2-c^2r^2.$$

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10367. (Artemas Martin, LL.D.)—Circle A contains circle B; the radius of A is r, but the radius of B is unknown; find the probability that circle B contains the centre of A.

11543. (Professor Sylvester.)—Let $x_1, x_2, \ldots, x_n$ be real linear functions of x, in which the coefficients of x have all the same sign; and $b_1, b_2, \ldots, b_n$ quantities having that same sign. Prove that the continued fraction

$$\frac{x_1}{b_1+}\,\frac{x_2}{b_2+}\,\frac{x_3}{b_3+}\cdots\frac{x_n}{b_n}$$

will change its sign $2n-1$ times, as x passes from one end of infinity to the other.

12132. (Professor Bhattacharya.)—A little squirrel clings to a thin rough hoop, the plane of which is vertical, and which is rolling along a perfectly rough horizontal plane; the squirrel makes a point of keeping at a constant altitude above the horizontal plane, and selects his place on the hoop so as to travel from a position of instantaneous rest the greatest possible distance in a given time. Prove that, m being the weight of the squirrel and m' that of the hoop, the inclination of the squirrel's distance from the centre of the hoop to the vertical is equal to $\cos^{-1}[m/(m-2m')]$.

12313. (J. H. Grace.)—If a system of parallel tangents be drawn to a plane curve, the sum of the radii of curvature at the points of contact is zero.

12461. (W. W. Taylor, M.A.)—Solve the equation

$$\Sigma(a^2+xbc\cos A)^2 = x\Sigma[(b^2+xca\cos B)(c^2+xab\cos C)],$$

where a, b, c are sides of a triangle ABC.

12522. (H. J. Woodall, A.R.C.S.)—Except in particular cases, a recurring series may be resolved into one or more geometric progressions.

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Preliminary Announcement.

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The Programme will be ready for issue in the latter part of November.

Members of the College are entitled to attend the Meeting free of charge, and members of other Associations of Teachers will be admitted on payment of half-fee.

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The next Monthly Meeting of the Members will take place on Wednesday, the 16th of November, at 7 p.m., when J. BLAKE HARROLD, Esq., A.C.I.S., F.R.C.A., will read a Paper on "Bookkeeping—and How to Teach It; with especial reference to the College of Preceptors Examinations."

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For Syllabus, see page 429.

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CONTENTS.

Page
Leader: Inspection 431
Notes 432
The Centenary of Berlin University—Mr. Haldane on "great ideas" and great teachers—The advancement of higher education among the children of the Working Classes—Mr. Devine on the education of the Governing Classes—Prof. Sadler on compulsory attendance at Continuation Schools.
Summary of the Month 434
Universities and Colleges 435
Cambridge—Oxford—London—Joint Matriculation Board—Manchester—Bristol.
The Educational Ladder 436
The College of Preceptors:
Meeting of the Council 437
Teachers' Diploma Examination (Summer, 1910) Pass and Honours List 439
The Relations of Science to Industry and Commerce: Address to the British Association at Sheffield by Mr. R. Blair, M.A., B.Sc., Education Officer, London County Council (*conclusion*) 441
Current Events 445
Fixtures — Honours — Endowments and Benefactions — Scholarships—Appointments and Vacancies—Literary—General.
The Dullness of Schoolmasters: Lecture at the College of Preceptors by Prof. J. Adams 448
The British Association at Sheffield: M. Binet's Method for Measuring Intelligence 452
Conférences Françaises: Choses et Etres—Création ou Evolution, par M. Boissot 452
Reviews 453
The Teaching of History in Girls' Schools in North and Central Germany (Dodge)—A Course of Plane Geometry for Advanced Students (Durell).
Christmas Books: First Notice 454
First Glances 460
Mathematics 460

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Inspection.

When the question of the justification of school inspection is raised, it is natural to maintain that, since education is a national concern, the State ought to control it, and to this end must send its officers to observe the work and report upon it. At a time when the tendency is all in favour of bringing railways and various other forms of enterprise under the direct control of the State, it is probably ill advised to question the right of the Board of Education to claim the complete direction of the education of the country. The great public schools, and a large number of private schools, are still outside the pale of State control, and it is at least doubtful whether the country would gain by their being brought within the range of His Majesty's Inspectors of schools. That range is widening year by year. The elementary schools have been long under the direct control of the Board of Education; the secondary schools are being gradually gathered into the fold; the training colleges for secondary teachers were the other year captured. Schools and colleges that accept Government grants cannot refuse inspection. The Board of Education seems to make a reasonable claim when it demands the right to send its Inspectors to see that the public money is properly spent.

While admitting that there is a financial justification for inspection of some sort, the teacher is entitled to claim to be heard on the question of the nature of the inspection. There is, of course, the police function. This has to be frankly recognized. It is an essential part of the Inspector's work to see that the regulations of the Board are observed in letter and in spirit. Here we have an excellent field for the exercise of inspectorial tact and common sense. On the whole, the profession of teaching has cause to be pleased with the way in which the police function has been performed. Apart from the small percentage of puerile officials inevitable in all Government departments, the Inspectors have proved themselves reasonable and sympathetic men as well as honest servants of the State. It is when the second function of inspection is considered that difficulties arise. It is assumed that the Inspectors are experts in method and are therefore in a position to direct teachers how to do their work. It has been said that the most important function of the Inspector is "to spread the contagion of good methods." Within well defined limits this attitude may be justified. In teaching there is now a body of professional principles that are generally recognized as of universal application. The Inspector ought to assure himself that the teachers know and apply these principles. But, apart from these rudiments, the teachers must be left free to do their work in the way that best suits their circumstances and their dispositions. What is an excellent method in one school may be unworkable in another; a mode of teaching that produces the best results in the hands of A. may lead to disaster in the hands of B. Only methods that can be proved to be in themselves and under all circumstances bad should be banned by Inspectors, and Inspectors are not the persons who are entitled to determine which these inherently bad methods are. It is for the profession as a whole to settle such matters.

It is natural for the official mind to desire uniformity, so that a standardization of method is not infrequently the ideal set up by an Inspector. Now such a standardization is not desirable in any kind of schools, certainly not in secondary schools. To do the Board of Education justice, it appears to recognize fully and frankly—in its circulars—the need to preserve the individuality and independence of each school. But in actual experience it is found that the influence of inspection favours a dead uniformity. Not only are Inspectors driven by the nature of their calling to impress their views on teachers and thus favour uniformity in the district they inspect, but the teachers themselves are only too prone to accept official suggestion and fall into line with other schools. Among secondary teachers there are, it is true, a certain percentage—at present a fairly high percentage—of men and women who are prepared to resent inspectorial suggestions of any sort, good or bad. It is well that there should be this spirit of contrariance, if only to secure that there shall be the proper reaction between Inspector and teacher. As the system becomes better understood and the Inspectors find their true function, teachers will be much more willing to listen to reasonable suggestions,

and Inspectors will recognize their own limitations and will confine themselves to suggestions that are reasonable.

At the present time there exists a complication that tends to retard the growth of a good understanding between teachers and Inspectors. As a result of the municipalization of education, there are now two bodies spending public money on schools and teachers. Like the Board of Education, the Municipal Education Authority wants to make sure that the public money is wisely spent; so it follows the example of the Board and appoints Inspectors of its own. There are thus in some districts two sets of Inspectors wandering about the schools and reporting upon them quite independently of each other. Under these circumstances the position of the teacher becomes intolerable. He is called upon to serve two masters who do not always agree. It is true that the strong and somewhat quarrelsome teacher makes capital out of the conflicting views of the two Inspectors and pays attention to neither. But the ordinary intelligent peaceable teacher, who likes to do his work honestly and yet to the satisfaction of the Authorities, finds himself in bad case. It may be said that, if both Inspectors are honest and efficient, their reports ought merely to corroborate each other. In actual experience such corroboration is somewhat to seek. This comes about not merely from the inevitable differences of opinion on matters that are, after all, debatable, but also from the fact that the two sets of Inspectors represent different interests. Not infrequently the interest of the Board of Education is opposed to that of the Local Authority. Cases will readily suggest themselves in which His Majesty's Inspector will recommend a change that will involve heavy local expenditure without increasing the grant from the Imperial Exchequer. Naturally the municipal Inspector will have a bias in favour of the local views.

If the functions of the two sets of Inspectors were clearly defined, the evil would not be so great. But, at present, the municipal Inspectors follow as closely as they can the methods of the Board's Inspectors, and the question naturally arises, what is the justification of this spending of public money to do twice over the same piece of work? It looks as if it were an attempt to answer the question: "Quis custodiet ipsos custodes?" In this case, the "custodes" must be taken to mean the Board of Education Inspectors. These were first in the field, and have all the prestige of higher salaries and His Majesty's name. In case of conflict, the municipal Inspector must usually give way. Meanwhile, the poor teachers must provide the battlefield for the contending forces.

Think of the time and the nervous energy wasted through the double visits of inspection from two distinct authorities who at the best are uncorrelated with each other and at the worst are hostile. If the Board of Education Inspectors are inefficient, by all means let the Municipal Authorities do their best to get rid of them. It is folly to try to mend matters by employing men to duplicate their work. If it is felt that there is not enough inspection through the fewness of the Government Inspectors, by all means increase the numbers; but let the inspection be conducted by one Authority that will correlate the work of all its officers. The present method is probably the worst possible.

NOTES.

The University of Berlin has celebrated its centenary with great enthusiasm, and well it might. When it was founded in 1809, and housed in a palace by Frederick William III, the fortunes of Prussia and of Germany were at very low water as compared with the flowing tide of the present day. The astonishing change was operated by subordinating the brute force of the great Frederick's system to the superior force of intellect and patriotic fervour, under the wise direction of W. von Humboldt, supported by the most notable professors and other intellectuals of the time. It is the cultivation of the intellect that has yielded the rich harvest that has redeemed the material losses and won the great renown of Germany. And well the Germans understand it. "For four days and nights," reports a correspondent, "the capital forgot its traditional worship of warriors as the makers of modern Germany, and acclaimed as the nation's real heroes the luminaries of science, art, and letters who have covered Berlin University with imperishable glory." It was the wisdom and patriotism of these intellectual heroes that made possible the later achievements of the warriors. The Kaiser took care to mark emphatically the truth that Berlin is not a mere local institution, but a national institution. "May the University loyally remember the time of her birth," he said, "and guard her Prussian-German character." But a University cannot do its work on compliments; and the Kaiser opportunely announced the institution of a fund of £500,000 for scientific research. The example of rich Americans has not been lost on him. He has brought his wealthy and public-spirited subjects to see how they can most effectively apply their riches for the true welfare and progress of the Fatherland. Such a demonstration is surely enough to stir our own guides and governors out of their amazing apathy.

Without discussing Mr. Haldane's notions about the apportionment of ideas among the different nationalities of the United Kingdom, we recognize with some hopefulness his clear appreciation of the importance of intellectual development, and of the part that the University might play in Great Britain as well as in Germany. Whichever nationality originates most "large, permeating ideas," they can all appropriate and apply such ideas; and the thing is to foster both origination and appropriation. "Nothing," as he said at Aberystwyth, "is so expansive as the train of thought suggested by an idea that is really great." But "great ideas require great teachers, and in the management of the affairs of nations stress ought to be laid on hero-worship." Such is the teaching of history—and psychology. Now, just reckon the number of University and other teachers that are overburdened with hero-worship in this country; consider how far such of them as are held in some such honour owe it to their position and work as teachers, and not to some extraneous causes; and then make a comparison with Germany. The difference is one of the most astonishing things that confound the intelligence of

an intellectual German visitor. And how are the "great teachers" to be obtained, and the "great ideas" to be evolved, and, what is more, to be put in fruitful practical operation? "The development of the true spirit of the University among a people," says Mr. Haldane, "is a pretty good measure of the development of its soul, and consequently of its civilization." True; but then it is for the leaders and governors of the people to direct the popular forces and to provide the necessary means. Mr. Haldane himself has a grand opportunity now as Chairman of a University Commission. What will he do with it? The German Emperor has furnished him with a shining example.

Mr. Marshall Jackman, the President of the National Union of Teachers and a member of the Consultative Committee of the Board of Education, has just called public attention to the trend of events in the application of legislative provisions for the children of the working classes. He finds, in the first place, that the Science and Art grants established in the fifties of last century for the improvement of the artistic faculties of the child of the working man have gradually been diverted to other sections of the community, "and finally the whole of the money was handed over to the Education Authorities for the benefit of secondary education." He finds, in the second place, that, "as the grammar schools and other trust schools were reformed, the facilities for the children of the workers to enter were gradually cut off." He finds, in the third place, that the whisky money, earmarked by Parliament for the benefit of technical education, "largely for the advancement of the higher education of the children of the working classes," was, by the Act of 1902, "handed over to the Local Authorities to be spent entirely on secondary education." And he finds, finally, that, when secondary schools obtained a fresh grant from Mr. McKenna on the condition of providing free places for elementary scholars to the extent of at least 25 per cent. of the school roll, "steps were at once commenced to whittle away the privileges which had been provided." These are serious allegations, and it is to be hoped that an investigation of their validity will not be prejudiced by a similar Socialistic campaign. Mr. Jackman's history may be right, and yet there may be compensations. Anyhow, it is desirable to know exactly how things work out in practice.

Mr. Devine, of Clayesmore School, sounds an alarm: there is "A Crisis in the Education of the Governing Classes of England" (1d., Garden City Press). "The public schools are not leading—they are lagging behind; and there is good reason to know that their difficulty in getting suitable masters increases year by year." How is this? Mr. Devine descries "the following facts":—

> Firstly, the astounding indifference of the general public to matters of education; secondly, that the profession of the schoolmaster is wholly lacking in organization; thirdly, that our present public-school methods are out of date, and the results of the present system constitute a grave menace to our national life and international relationships; and lastly, that the public schools are so highly conservative and tradition-bound that they cannot reform themselves, and require the intervention of a State inquiry.

Mr. Devine discusses these "facts" briefly, but pointedly, and his mind runs very much on the same lines as a recent article in the *Morning Post*—or possibly we should say *vice versa*, but that does not matter. He lays proper stress upon the efficiency and the effects of the German educational system, and he is shrewd enough to discern that "it is not merely the construction of Dreadnoughts, or the readjustment of our fiscal methods, that will suffice, but it is *at root* the reform of our educational system as it affects the sons of the governing classes"—and, we will add, the rest of the classes—"that will tell most in the direction of national efficiency." It is interesting to note that Mr. Devine thinks "the preparatory schools of the country are probably among the best equipped of all"; but their dependence on the public schools gives them a wrong educational twist. "British boys are the finest material in the world"; and "why should they be handicapped by a hollow and antiquated theory of education?" That is the question. Mr. Devine concludes that a Royal Commission of inquiry is urgently necessary. "One has only to consider the state of the schools previous to 1862, and the great reforms effected as a result of the Commission, to be encouraged to hope for much from another adjustment of education at this juncture—reforms that I am convinced would be welcomed by every preparatory- and public-school master, and that would restore every confidence, and grant the schools a new lease of life."

Prof. Sadler, opening the new technical wing of Rutherford College, Newcastle, pointed out once more that "the leakage between boys' and girls' leaving school and going to work is the vital weakness in our present educational armour," and must be stopped. The best of all possible ways of accomplishing this is "the convinced movement on the part of public opinion," and accordingly he made a forcible appeal to all employers and parents to throw the whole weight of their influence on attendance at continuation schools. Indeed, "he would compel employers to allow every apprentice to attend continuation schools": such compulsion has become "absolutely necessary."

> Without quite knowing what it was doing, modern industry was sweeping down and getting as much advantage as it could out of the skill of the army of young people. The straight backbone of industry was being deflected; young people were employed for a particular, but not very expensive, period of their lives, but that form of industry had little regard to the future of those children, little regard to the future of the stock, or to the future industrial skill of the nation. It was becoming increasingly important that the State should prevent employers from getting out of adolescence more than should be got from those critical years at the sacrifice of later skill and later strength, and that was the argument he put forward to those opposed to compulsion. Unless the State came in and imposed its will, they could not teach those great economic forces who felt compelled to get as much advantage and profit as they could out of young workers.

The example set by Scotland may have to be followed, in case employers fail to recognize the extent of the interests at stake. There is no need to depreciate the value of voluntary effort on the part of apprentices and young artisans, or the voluntary concessions of larger-minded employers; but, if these fall short of closure of the gap, there remains nothing but the strong hand of compulsion. There is no lack of precedent.

SUMMARY OF THE MONTH.

Prof. Sadler delivered the inaugural address of the winter session of the Birkbeck College. After sketching the development of English education during last century, and showing how much was accomplished by men like Birkbeck, he said that both in science and in art the passion of modern study has been to see and to represent things as they really are. This at bottom is the basis of scientific thought and the purpose of the painter's and draughtsman's expression. To keep one's mind clear as a mirror is the intellectual and also the moral condition of real advance both in science and in art. It is impossible, however, to see things as they really are without a long preliminary discipline, in which one learns how to see and how to express. Therefore one side of the modern educational movement is to prolong for all students the period of preliminary preparation and discipline, which having been accomplished, the student may go to that freer, more self-active task which is before those who have received thorough training and preparation. It is in giving that thorough training and preparation that we in England, compared with other leading modern nations, have been until lately grievously in arrear. It is because our system of intermediate or secondary education is meagre, starved, sectional, that the immense efforts bestowed on technical and adult education by such men as Dr. Birkbeck failed for so long to produce the harvest which they confidently expected. The work of strengthening this period of disciplinary preparation for advanced studies—strengthening our whole system of secondary education—is one of the greatest tasks which are before us now as British citizens.

At the weekly meeting of the Education Committee of the London County Council (October 12), Mr. H. W. Liversidge stated that 156 teachers had already been appointed from the "College List," and 47 teachers were nominated for appointment, making a total of 203. About a hundred vacancies in Council schools were now in the course of being filled. They would probably be able to throw places open to competition as soon as those vacancies were filled up, unless any vacancies happened to be filled up otherwise than by the college list. He thought that certainly before Christmas there would be open competition in the schools. Mr. A. A. Thomas moved that two of the Sub-Committees be instructed to take immediate steps to comply in spirit and in letter with the requirement of the Board of Education that the number of scholars on the register of any class or group of classes under the instruction of one teacher must not exceed sixty, and report as to the number of additional teachers necessary for the purpose: 82 per cent. of the teachers who had left the London training colleges during the last year were without appointments, and over a hundred who left in 1908 and 1909 were still without employment. Mr. Ernest Gray said that the Council had trained more teachers than the schools of London would be able to absorb, and that difficulty was going to recur. The policy of London has been one of steadily reducing the size of the classes. Their present troubles were partly due to the old School Board's difficulties. There had been serious miscalculations in the past, but the responsibility rested upon the shoulders of one man more than anybody else—of one official of the Board of Education, who forecasted a dearth of teachers in 1910. Mr. R. A. Bray, who seconded Mr. Thomas's resolution, declared that the Progressives had never trained too many teachers. In London they could employ hundreds more, and there was a danger that training college accommodation might be cut down, so that in a few years' time there would be a real dearth of teachers. It was unfortunate that five or six thousand teachers were turned out of their training colleges on the same day. The motion was carried unanimously. A motion by Mr. Gautrey, asking the Council to urge the Board of Education to take steps to secure that no further addition be made to the number of unqualified teachers recognized by the Board as efficient for employment in elementary schools, was also carried.

The Annual Conference of the Council of the National Union of Women Workers of Great Britain and Ireland, held at Lincoln, passed a resolution urging the need of more sympathetic and practical continued education for adolescent boys and girls by better co-ordination between the present elementary and voluntary continuation schools, and by the gradual introduction of compulsory schools. The position of women in the Universities was also discussed. Miss Beatrice Edgell, Lecturer on Philosophy at Bedford College, London, said that the position of women in Universities was one to fill them with great thankfulness. She pleaded for more fellowships and studentships to enable both men and women to gain a few more years of precious leisure for study. Miss Annie Rogers (Oxford) spoke of the position of women in relation to the Universities of Oxford and Cambridge from the constitutional point of view. The question of the admission of women to degrees had been raised at Oxford, she said, but not at Cambridge. The case for it was stronger than it was twenty years ago, but the opposing forces were still very vigorous. They must adopt a common policy and be prepared for prompt action when the moment for action arrived. Miss Alice Wall discussed the participation of working women in higher education. This was, she said, a new force to be reckoned with, and to-day we stood at the beginning of a great forward movement. She advocated the opening up of existing colleges to working women and the creation of new hostels and colleges for them. The object of the training should be to fit themselves to be effective leaders of their own people.

Mr. C. P. Trevelyan, M.P., Parliamentary Secretary to the Board of Education, presented the certificates gained last session by students at the Morley College, in Waterloo Road (October 5). He said the College was doing a valuable pioneer work, for we were beginning to feel very bitterly that elementary education alone was insufficient to keep our country constantly rising in activity and industry. Elementary education was so easily lost when the school was left, and the problem was, how to provide the workers of the country with some kind of continued education. We wanted our people thoroughly educated technically, but what was more important than technical education was that we should give our people wide knowledge, activity of perception, and vigorous minds. It was to this side of education that the College was chiefly devoted, and was providing opportunities for education which otherwise would not be available. He thought every man and woman should have a hobby in the sense of a study, and that they should go thoroughly to the root of the matter. He was a democrat for this reason beyond anything else, because he believed the humble people were brought face to face always with hard facts, and, if they had the information, were capable by their very life of making a better judgment than those who had hitherto presumed to rule them. But he wanted their judgment to be an informed judgment.

At the opening of the new Physical and Chemical Laboratories at Bridgend County School, Principal Griffiths, University College, Cardiff, delivered a strong criticism on the report of the Board of Education under the Welsh Intermediate Education Act for 1909. He said he had been astonished and grieved at that report. The Board of Education should, if publishing the report of their examiners, publish it in full. It was a very good rule to adopt, because by taking bits out of any report it could be made to prove anything, and by this report of the Board of Education he thought they had been rather playing that game. The Board justified its remarks by quoting from its examiners, who were the men who could judge, but it failed to give the full purport of their remarks. The speaker quoted portions of the report, and made comparisons with what the examiners said. One part of the report, he said, referred to "the wooden, unintellectual type of mind," but nowhere in the examiner's report was such a reference made. He was in as good a position as any one to judge. He had to judge, as Principal of the College, the products of the secondary schools of Wales, who were continually coming to the College, and there were six hundred to be looked after. Having also to sit on the Examining Board of the University, he was in a position to judge whether they were turning out wooden and unintelligent types of students. He went further, and said he was in a position to compare the products of the Welsh schools with the products raised in the English schools, of which, perhaps, he had had the more experience, and he said they compared favourably

with the children of the English secondary schools. To say that they were wooden-headed was a libel on their teachers and on the children themselves. He did not want this crushing criticism to go unanswered in this country. He had been a severe critic of the Welsh Board himself, because he thought they worshipped marks too much, but that was very different from this kind of criticism. His was, he hoped, constructive criticism, but this was what he called destructive criticism. To tell their young people that they were wooden-headed was not the way to encourage them.

Lord Shuttleworth, addressing the Bolton Education Society, said there was one side of secondary-school education that seemed to need special stimulus and encouragement, and that was the adequate teaching of modern languages, especially of French and German. The trustees of the Gilchrist Educational Trust had accordingly established, in connexion with a number of British Universities, studentships obtainable by students who had taken a degree in Honours in Modern Languages to enable the holder to proceed to a foreign country for a year's study that would be a suitable preparation for teaching in a secondary school. They had also co-operated with the officials of the Board of Education and had provided funds for an interesting experiment in the way of an interchange of teachers with a foreign country. The results of this experiment—handsomely acknowledged more than once by the Board of Education in their annual reports—had justified the Board in making provision for the carrying on of that system as a part of the regular work of the Department without further aid from the Gilchrist Trust. After an exhaustive review of the good work done by the Gilchrist Educational Trust in various ways, Lord Shuttleworth concluded as follows:—"Does not the story of Dr. Gilchrist, his will, the wide discretion left to the trustees, and the encouraging results of so many pioneering enterprises in the field of higher education, both secondary and popular, point to certain conclusions? (1) That property may be usefully left in trust for educational purposes without special restrictions; (2) that in such bequests at least the pious founder may wisely dispense with the control of the 'dead hand'; (3) that pioneering work in education may be carried out on fruitful rewarding lines; (4) that here is a field in which voluntary effort may more effectively take the earlier steps, though the later developments of what has thus been begun may necessarily become the concern of the State; (5) that experiments—variety of methods—and pioneering are essentials to educational progress, and deserve the encouragement of authorities such as the Universities and the State Department of Education." He commended these conclusions to the consideration of the Bolton Education Committee.

At the recent great International Exhibition at Brussels, in addition to the Grand Prix awarded for maps and apparatus for geography, and a Silver Medal for books and appliances for higher education, Messrs. George Philip & Son, Ltd., of Fleet Street, were recommended for a Gold Medal for books, &c., for elementary education. This recommendation was not carried further, however, since the jury decided that no awards would be made for *matériel d'enseignement* in the elementary group.

Dr. John Peile, Litt.D. Cantab., Hon. Litt.D. Dub., F.B.A., Master of Christ's College, Cambridge, died on October 9 in his seventy-third year. Born at Whitehaven (Cumberland) in 1838, he was educated at Repton and St. Bees, and at Christ's College. He was Craven University Scholar in 1859, and was bracketed Senior Classic and Chancellor's Medallist in 1860. In 1869 he published his "Introduction to Greek and Latin Etymology," and subsequently digested the elements of the subject in a shilling primer. In 1884 he was appointed University Reader in Philology. In 1887 he was elected Master of his College. For many years he made collections of material for a history of Christ's College, which he published in 1900. He took a foremost part in all the forward movements of the University in his time.

Dr. Theobald Fischer, Professor of Geography at Marburg, died in his sixty-fourth year. Prof. Fischer devoted himself especially to the study of the Mediterranean coastlands. Between the years 1883, when he became Professor at Marburg, and 1902 he paid a series of visits to the Barbary littoral and the plateau of the Atlas. In this way he made valuable additions to our knowledge of the structure and articulation of the Atlas by his studies of the channels of the two solitary rivers which intersect the high plateau, the Tensift and Umm e' Rebia. Commercial geography, however, was the basis of his teaching. He was a keen advocate of the colonial expansion of his country and of the spread of German influence, and his lectures on colonial politics attracted considerable attention. The results of Dr. Fischer's researches are mostly to be found in "Petermann's Mitteilungen" and in the "Proceedings of the Hamburg Geographical Society." He was the author of a work on the peninsulas of Southern Europe in Kirchhof's "Länderkunde Europas," and of books on the date palm (1881) and the olive (1904).

UNIVERSITIES AND COLLEGES.

(*From our own Correspondent.*)

Another landmark gone! Cambridge men came back to the University, to find that, just before the beginning of term, the genial and accomplished Registrary, Mr. J. W. Clark, the friend of so many successive generations of "the boys," as he called them, had passed away to his rest. He was the very embodiment of Cambridge tradition, a firm friend but a vigorous fighter; he had many opponents, but never an enemy. How many undergraduates he has befriended, and how he has influenced Cambridge life and thought, only those admitted to intimacy with him can tell. Certain it is that "J." will be missed by those who knew him. Stern and severe he could be, as windbags found to their cost, but to the freshman and the humble undergraduate he was the kindliest and the best of friends.

Cambridge.

The appointment of Dr. Keynes to succeed Mr. Clark at the Registry is an ideal one. Dr. Keynes has developed the organization of the Local Examinations, so well begun by the Bishop of Bristol, with a vigour and tact which have won admiration from all. In that difficult position of Secretary to the Council he has won golden opinions. He is a strong man with a unique experience of University affairs, whose counsel is needed at this critical time.

The report on the Constitution of the University has now been issued in an amended form. A great many of the original suggestions have disappeared, and the gist of what is left is as follows. A House of Residents is to take the place of the Electoral Roll, and the new body is practically to exercise the functions of the Senate, with an appeal to the larger body under certain conditions. Membership of the new House of Residents will depend upon the tenure of some office connected with education within the University. The project as foreshadowed in the report would include organists of colleges while excluding men who have left Cambridge within a year or so and are acting as Professors or even Vice-Chancellors of other Universities. The flaw of the scheme seems to be that the old Electoral Roll, the qualification for which depended upon residence, had no important functions except that of electing the Council, whereas the new body will, to all intents and purposes, supersede the Senate.

The entry of freshmen is a record one, The fascinations of the Poll course are drawing the fourth-form boy to this place of learning. To take a fourth class in both parts of the Little-go, and then specialize in Law, History, Engineering, or Physics, is very attractive to the average freshman, while the athletic person can now be certain that, of the 470 working days of his University career, not more than half need be spent upon the distasteful pursuit of knowledge.

The Pensions Syndicate have issued an excellent report. They suggest that University officials should be compulsorily retired on a pension at seventy, and estimate the total cost of this at not more than £2,300 a year. Fifteen years' service to be the minimum to qualify for a pension; maximum pension to be £500 for a professor, and five-sixths of their stipends for other officials. Each year of service to entitle to one twenty-fifth of the maximum. Put shortly, a professor, after twenty-five years' service, would get £500 a year, and any University officer drawing £300 a year would retire, after twenty-five years, on £250, in all cases assuming the age of seventy is attained.

Another change has come with the new academical term. In the words of a certain irreverent publication, if Cambridge has no new virtues, at any rate we have a new Vice.

Mr. R. F. Scott, Master of St. John's, duly succeeds to the place vacated by Dr. Mason, Master of Pembroke. The last-mentioned dignitary, though doubtless disappointed, as we all were, at his not being selected for the Bishopric of Lincoln, signalized the last weeks of his office in presiding at the social functions necessitated by the presence of the clerics during the Church Congress. Hospitality on a lavish scale was tendered by the colleges, and Cambridge traditions were well maintained by the Vice-Chancellor and Mr. Spalding, the Mayor, representing the interests of University and town respectively.

The Rugby team promises to be stronger than usual; there are many valuable recruits among the freshmen. Rowing prospects are fairly bright, although Cambridge did not do much at Henley. At any rate, numbers must tell, and at present Eton is sending us freshmen who row and the Scotch schools men who are grounded in football. The Fours should go to First Trinity, but the Hall will make them go all the way. Third Trinity are also said to be good. So far things have been fairly quiet, and the streets have been possible for ordinary wayfarers.

The Little-go list, Part I, contains the names of only about fourteen men who have actually been in residence. It will soon be possible to say that not 10 per cent. of men in residence read any classical book whatever. We are styled the abode of learning, if not the home of culture.

It is rumoured that Mr. J. H. Flather will succeed Dr. Keynes as Secretary to the Local Examination Syndicate; and, as these notes are being written, the announcement is made that Mr. Shipley has been elected Master of Christ's. Fortunate is the college which had three such capable men from whom to make a selection. Strong as Mr. Greaves and Dr. Hobson undoubtedly are, the appointment of Mr. Shipley will cause general satisfaction in the College. He is a young man, strenuous in his work, and not only popular with his pupils but respected by them and the University at large.

Oxford.

The Hebdomadal Council of Oxford University has decided to introduce the statute on Faculties on Tuesday, November 8, and the statute abolishing compulsory Greek on Tuesday, November 22. It will be remembered that, in its recent report on Oxford reform, the Hebdomadal Council threw its recommendations for a reconstitution of the Faculties and for abolishing compulsory Greek into draft statutes, and it is these which the University will be invited to discuss on the above dates. In regard to the Faculties, the Council proposes as follows:—

1. That the University shall have power from time to time to repeal, alter, and add to any of the provisions of Stat. Tit. v.
2. That the members of each Faculty shall be the recognized teachers in that Faculty.
3. That the delegacy of the Common University Fund shall cease to exist, and that certain of its powers shall be vested in the General Board of the Faculties.
4. That a portion of the income of the Common University Fund shall be called the Faculties Fund, and shall be administered by the General Board of Faculties, and that the residue shall fall into the General Fund of the University.

The Statute regarding compulsory Greek provides:—

1. That Greek shall no longer be a compulsory subject.
2. That every candidate must, in order to pass Responsions, satisfy the masters of the schools in Latin and in elementary Mathematics, and also either in (*a*) Greek, or in (*b*) two other subjects, one of which must be a modern language.

London.

The University Extension Board of the University of London has just issued a programme of lectures for the coming session. Between seventy and eighty courses have been arranged to be delivered in different parts of the London area. A number of courses of lectures on the History of London will be delivered, and during the session fortnightly visits to buildings illustrative of the history and architecture of London will be conducted by Mr. Allen Walker. Those who are interested in history will find courses on Ancient, Medieval, and different periods of Modern History at a number of centres. The courses on Literature are even more numerous, and cover topics as various as Hebrew, Greek, Renaissance, and Modern Literature. There are courses on Egyptian History and Art, on Music, on Geography, on Economics, and on Child Study, and as in former years a special training course for lecturers. The most interesting development of the work has been the adoption by the Senate of a scheme for diplomas in History, in Literature, and in Economics and Social Science, to be awarded after a four years' course of study. Special courses, designed with a view to this diploma, have been arranged, and some of the work will be carried on in permanent institutions like University College and King's College. A special pamphlet explaining the diploma scheme and setting out the courses and the places where they will be delivered may be obtained of the Registrar of the University Extension Board at the University.

Joint Matriculation Board.

The Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield has issued the list of successful candidates in the September Matriculation Examination. There are 57 names (12 females) in the First Division and 180 (73 females) in the Second Division. It is interesting to note that very few of the candidates come from public schools, the great majority having qualified by private study or at county or municipal secondary schools.

Manchester.

Last session there were in all Faculties in Manchester University, except Medicine and Technology, 1,135 students, including 328 women; Faculty of Medicine, 372 (22 women); Faculty of Technology, 192 (3 women); total, 1,699, or, allowing for 42 students entered both as Science and as Medical students, 1,657. Then some 200 attend the evening classes, 200 attend lectures on Railway Economics, and some 200 attend courses in Law and Economics at the Bankers' Institute. A point to be noted is the increase in the number of post-graduate and research students—a most important matter, for the efficiency and power for good of a University begins from the top and penetrates downwards. This desirable increase, which is steady and not spasmodic, is accompanied by an equally desirable decrease in the numbers of students who come up non-matriculated. A good many people may think that it is perhaps time now the University went on with its work without any more altering of ordinances, confusing of courses, and shuffling of subjects.

Bristol.

The new wing of Bristol University, erected for the Chemical and Physiological departments at a cost of £50,000, will be opened by the Chancellor on November 15. The new Chemical department, which will contain working places for two hundred students, consists of a basement and two floors. In addition to special rooms for gas analysis and photochemistry there is a large metallurgical laboratory, where heavy electric currents are available for electrometallurgical investigation. The new Physiological department consists of three floors and a basement. On the ground floor is a lecture theatre capable of seating about a hundred and fifty students, and there is special provision for illustrating the lectures.

THE EDUCATIONAL LADDER.

Cambridge University.—John Winbolt Prize in Civil Engineering: Alec Birks Eason, B.A., Jesus.—Gedge Prize: George R. Mines, B.A., Sidney Sussex.

Emmanuel.—Research Studentships, £150 each: G. E. K. Braunholtz and A. Ll. Hughes.—Grants: S. Mangham, £60; R. H. Snape, £40; C. S. Robinson, £20.—Exhibition of £50 to an Advanced Student: J. Ivon Graham, B.Sc. Lond., Royal College of Science for Ireland.—Additional Exhibitions of £30: A. J. Grove, M.Sc., Birmingham University; F. Smith, B.A., B.Sc., Manchester University.—Honorary Exhibition: J. W. Lesley, B.A.

Trinity.—Fellowship (held with the University Readership in Chemical Physiology): Dr. F. Gowland Hopkins, F.R.S., late Natural Science

Tutor at Emmanuel College, and formerly Demonstrator in Physiology at Guy's Hospital.—Ordinary Fellowships: G. J. Taylor, H. T. J. Norton, A. V. Hill, and G. N. Watson—all mathematicians and graduates of the College.

Edinburgh University.—Vans Dunlop Scholarship in History, £100 for three years: Arthur Birnie and J. A. Calder, equal; highly commended, John Vivers. Vans Dunlop Scholarship in Economics: A. C. Badenoch, M.A.; *proxime accesserunt* T. S. Mackie, M.A., and Mary A. Rankin, M.A.

Elmslie Memorial Scholarship (for Hebrew and other Semitic Languages): W. A. Leslie Elmslie, Westminster College, Cambridge (son of the late Rev. W. Gray Elmslie, D.D., in memory of whom the scholarship was founded).

Glasgow.—Ferguson Scholarships (£80 a year for two years; open to all the Scottish Universities): Classical, James Oliver Thomson, Aberdeen University; Mathematical, Caleb A. Stewart, M.A., Glasgow University: Philosophical, Alan J. Dorward, M.A., Edinburgh University.

London: Battersea Polytechnic.—Scholarships: £75 (full course of training in Domestic Science), Miss Frances Greene; £20 (one year's training in Science as applied to Housecraft), Miss A. L. MacElderry.

London: Stationers' School.—Thomas Brown Scholarship, £80: A. T. Evans. Charles Knight Scholarship, £40: W. C. Mizen. Master's Prize, £10: A. G. Tye. Thomas Brown Bursary, £5 and Medal: L. H. Druett. Thomas Brown Prize, £5: S. E. Garnsey. J. J. Miles's Prize, £3: L. H. Druett.

London University.—

University College.—Entrance Scholarships and Exhibitions to the Faculty of Medical Sciences: Bucknill Scholarship and First Medical Exhibition, 190 guineas, divided equally between W. A. E. Karunaratne and C. J. H. Sharp; Second Medical Exhibition, 55 guineas, H. A. Fawcett, *proxime accessit* E. A. L. Sansom; Epsom Scholarship, H. LL. G. Hughes.

Charing Cross Hospital.—Huxley Entrance Scholarship, 50 guineas: R. V. Bevan. Universities Scholarship, 50 guineas: C. J. Marshall.

Guy's Hospital.—Senior Science Scholarship for University Students: £50, Ronald C. Oxanne, B.A., Hertford College, Oxford. Junior Science Scholarships: £150, Arthur Lisle Punch, Preliminary Science Class, Guy's Hospital; £60, Alfred George Simmins, Preliminary Science Class, Guy's Hospital. Certificates: John Frank Herbert Stallman, Preliminary Science Class, Guy's Hospital; Olaf Gleeson, Walthamstow Technical Institute. Entrance Scholarships in Arts: £100, Alexander Beckett Bond, Bradfield College; £50, John Arnold Molony Alcock, Radley College. Equal Certificates: Samuel Vidot, St. Louis College, Seychelles; Albert Victor Wood, Wolverhampton Grammar School.

London Hospital.—Entrance Scholarships in Science: £120 (Price), A. C. Perry; £60, P. C. Cloake; £35, S. Batchelor. Epsom Scholarship, £126, J. N. Deacon. Price Scholarship in Anatomy and Physiology (University Scholarship), £60: H. H. Mathias, King's College, Cambridge.

St. George's Hospital.—University Scholarships: Ernest Franz W. Grellier and W. E. Waller (equal). Allingham Scholarship in Surgery: Lionel Colledge. William Brown £100 Exhibition: E. W. M. H. Phillips. Brackenbury Prizes in Medicine and Surgery: W. W. Berry. William Brown £40 Exhibition: C. H. S. Frankau.

Manchester University.—Research Fellows: J. H. Andrews, M.Sc., in Metallurgy; W. N. Haworth, M.Sc., Ph.D., and J. E. Ramsbottom, M.Sc., Ph.D., in Chemistry.

Newcastle-upon-Tyne: Armstrong College.—Entrance Exhibition in Science, £20: Basil G. Quin. Entrance Exhibitions in Art: Gilbert G. Armstrong and Margaret Douglas. Newcastle Corporation Exhibitions—Science: Mildred Atkinson, Cedric I. Burrell, Wm. Hesketh, Basil G. Quin, Carl F. Schmidt; Arts: Henry H. Wilcox. Lloyd's Scholarship in Naval Architecture: Kenneth Inglis.

Oxford University.—Harness Prize: Robert C. Brooke, B.A., King's; honourable mention, Joseph Meek, B.A., Scholar of Trinity.—Geographical Scholarship: Benjamin W. Baker, B.A., University College; commended, Anthony H. Simpson, Scholar of Corpus.

Jesus.—Open Mathematical Scholarship: Sydney L. Smith, Northampton and County School. Scholarship on result of Welsh Central Board Examination in Science and Mathematics: William Hughes, Llangefni County School, Anglesea. Open History Exhibition, £60: Frank L. Clark, Alleyn's School, Dulwich, and London School of Economics, Holloway. Open Natural Science Exhibition, £60: Ivan R. Gibbs, Cheltenham Grammar School.

Merton.—Fellowship: Eric A. Barber, sometime Scholar of New College.

St. John's.—Senior Scholarship: F. A. Mason, Scholar of New College.

Trinity.—Fellowships: R. A. Knox, M.A., Scholar of Balliol (son of the Bishop of Manchester); J. Leslie Brierley, M.A., B.C.L., Fellow of All Souls (Official Fellow, to be Lecturer in Law).

Reading, University College.—Dr. W. G. Duffield has been appointed Professor of Physics; Miss Grace Owen, B.Sc., Lecturer in Education; Miss M. D. Belgrave, M.A., Sessional Lecturer in English Literature; Mr. J. P. Clatworthy, B.Sc., Lecturer in Mathematics; and Mr. Walter Ford, B.A., Teacher of Singing.

St. Andrews University.—Berry Scholarships: Mental Philosophy, James Baxter, M.A.; English, Charles B. Mackie, M.A. (gained, but resigned, by James Wilson, M.A.).—Bruce Scholarship: Mental Philosophy, William Douglas, M.A.—Ramsay Scholarship: Classics, W. R. C. Callander, M.A.—Miller Prizes: Classics, Frederick T Mackenzie; Mathematics and Natural Philosophy, John N. M'Inroy, M.A.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, on October 19. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage Smith, Mr. Barlet, Rev. J. O. Bevan, Rev. J. B. Blomfield, Rev. A. W. Boulden, Mr. Brown, Mr. Charles, Mr. Holland, Miss Lawford, Rev. R. Lee, Prof. Lyde, Mr. Marx, Mr. Millar Inglis, Dr. Moody, Mr. Pendlebury, Rev. Dr. Scott, Mr. Starbuck, Mr. Storr, Mr. Vincent, and Mr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported the results of the recent Summer Examination of Teachers, and diplomas were granted to those candidates who had satisfied the prescribed conditions. (For list, see page 439.) The prize of £10 for Theory and Practice of Education was awarded to Mr. T. S. Barnes, the prize of £5 for Mathematics to Mr. F. J. Hemmings, and the prize of £5 for Natural Sciences to Mr. E. Shepherd.

He reported the preparations that had been made for the Winter Meeting for Teachers to take place in the second week in January next.

On the recommendation of the *Educational Times* Committee, it was resolved that a special Committee should be appointed to deal with all matters relating to the production and publication of the College journal.

The Report of the Finance Committee, showing the result of the operations of the College during the first three quarters of the current year, was adopted.

The Examination Committee presented a Report recommending (*a*) that vacancies in the examining staff in the department of Mathematics should be advertised, and applications invited to fill the vacancies; (*b*) that no prize at the diploma examination should be awarded to a candidate who had not qualified for the Licentiateship or Fellowship Diploma. The Report was adopted.

The Rev. Canon R. D. Swallow, M.A., Head Master of Chigwell School, was elected a member of the Council to fill the vacancy caused by the death of Mr. Eve.

Mr. Rushbrooke was appointed one of the representatives of the College on the Federal Council.

The Rev. J. O. Bevan was appointed the representative of the College on the Council of the League of the Empire.

The following books had been presented to the Library since the last meeting of the Council:—

By Edward Arnold.—Tales of Old Romance (6 parts), and Every Child's Stories (6 parts).

By the Cambridge University Press.—Barter's Scenes from Eighteenth Century Comedies; Lobban's Fifty Poems of Tennyson.

By W. B. Clive.—London Matriculation Directory, September, 1910.

By Hachette & Co.—Mnemonic French; Pocket Polyglot Series, Nos. 1 and 2; Bernon's Pronunciation of the French Language Simplified; Cossard and Laurent's Méthode Directe; Huguenet's About's Le Grain de Plomb; Lazare's Questionnaire Général; Purkiss's Introduction to French Sounds; Thémoin and Bluth's Deutsche Lektionen nach der Gouin Methode; Weiss's Hauff's Die Geschichte von dem Kleinen Muck.

By Macmillan & Co.—Modern Dictionary of the English Language; Fowler's Narratives from Gibbon's Roman Empire; Parr's Plutarch's Life of Caesar.

By Methuen & Co.—Cunnington's Home and State; Elias's In the great Colonial Bush; Wilmot-Buxton's Junior History of Great Britain.

By J. Murray.—Hardwich and Costley-White's Old Testament History, Period IV.

By the Oxford University Press.—Allsopp's Tennyson's Princess; Parr's Carlyle's Heroes; Templeton's Dumas' (Père) Pages Choisies.

Calendar of the University College, Reading.

Calendar of the Aberdeen University.

Calendar of the University of Leeds.

Incorporated Accountants' Year Book, 1910–11.

Eve Memorial Fund.—In the list of contributors published last month the name of Mr. J. W. Addis was accidentally omitted, and a contribution has since been received from Sir George Young.

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COLLEGE OF PRECEPTORS.—TEACHERS' DIPLOMA EXAMINATION.

Summer, 1910.

The Summer Examination commenced on the 29th of August, and was held in London and at the following Local Centres:—Birmingham, Bristol, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Plymouth, Sanday (Orkney), Tottington, Wick; Bangalore, Lucknow, Madras, Sanawar, Simla (India); Umzinto (S. Africa); Change Islands (Newfoundland); Freetown (Sierra Leone); Hong-Kong (China).

The total number of candidates examined was 301.

The following are the names of the candidates who passed in the various subjects: (*hon.*) attached to a name, or to a letter denoting a subject, indicates that the candidate obtained Honours in the subject:—

Theory and Practice of Education.

Licentiateship.

Amesbury, J.
Barnes, T. S.
Benians, P. S.
Brooke, H.
Cooper, J. G.
Cross, Miss A. G.
Dodd, Miss J. A.
Evans, W. A.
Galbraith, M. H. A.
Guy, B. B.
Hughes, B.
Jones, J. E.
Le Pévédic, J. M.
Munro, F. W.
Parkes, J. A.
Renwick, J.
Rittenberg, R. J.
Robinson, W.
Rogers, C. W.
Rowland, J. W.
Seddon, J.
Shepherd, E.
Sutcliffe, T.
Swift, J. A.
Thomas, T. J.
Toyer, R. V.
Webley, C. E.
Whalley, Miss A. L.
White, A. J.
Whitebrook, J. C.
Williams, H.

Associateship.

Abrahams, P.
Atchison, F.
Bending, P. E.
Bentley, R. P.
Blackburn, Miss M. E.
Boyle, Miss J.
Bramwell, Miss M. L.
Briden, A. C.
Brown, W. J.
Butterworth, Miss S. E.
Chance, J.
Clarkson, J. J.
Colville, Miss E. C.
Cooke, T. G.
Counsell, T.
Cox, F. V.
Crimp, Miss D. G.
Dawes, Miss A. E.
Dodd, E.
Dowse, H.
Doyle, T.
Drakeley, Mrs. C. M.
Elcombe, E. E.
Entwistle, W. C.
Evans, A. E.
Evans, E. P.
Eyre-Walker, W.
Finch, G. J.
Fleming, R.
Fowler, Miss G. E.
Frayer, Mrs. A. M. E.
Gardner, Miss G. O.
Garner, E.
Gibbons, Miss A. M.
Grant, A. S.
Green, Miss E. G. G.
Griffith, Miss E. L.
Griffiths, W. H.
Hargreaves, Miss R. B.
Harley, E. M.
Harman, A. G.
Heward, G.
Hill, W. J.
Hoad, Miss A. M.
Irving, R.
James, Miss A.
Keast, Miss A. E.
Kelly, W. J.
Kemp, G. S. F.
Kennedy, C. J.
Kitchen, F.
Laugher, J. H.
Lowe, Miss H. H.
Lucas, E.
Ludford, Miss A. H.
Maccormac, M. C.
Mainwaring, R.
Marchant, P. J.
McGahey, M. R.
McGinity, J.
McMillan, W.
Middleton, D. H.
Miles, Miss C.
Mitchell, J. W.
Moffatt, M.
Norman, J. E.
Osborne, J. P.
Parrell, Miss L. D.
Paul, W. J.
Peck, F.
Perry, Miss E. J.
Piggott, Miss M. M.
Pook, Miss F. E.
Price, Miss A. G.
Riches, P. G.
Rimmer, J.
Royce, Miss A. M.
Self, Miss F. L.
Smith, A. R.
Smith, Miss S. E.
Sparshott, T. E.
Squire, Miss E.
Steedman, Miss M.
Stephens, J. V. J.
Stevens, Miss A. L.
Stevens, Miss F. E.
Sutherland, J. H. C.
Sutton, J. F.
Sykes, V. H.
Taylor, Miss A. B.
Toyer, A. M.
Vaughan, W.
Wallis, Miss M. A.
Walsh, Miss B.
Weaver, W. R.
Westgate, Miss C. M.
Wilson, Miss A. S.
Wilson, R. O.
Winsor, A. E.
Wood, A. J.
Wragg, J. W.

English Language.

(*Subject No.* 1.)

Ashman, E. T.
Atchison, F.
Bentley, R. P.
Birkenhead, H. T. G.
Boucher, Miss J.
Bramwell, Miss M. L.
Bullough, F. W.
Butterworth, Miss S. E.
Clarke, H.
Counsell, T.
Cox, E. W. A.
Cox, F. V.
Crimp, Miss D. G.
Datson, A.
Dawes, Miss A. E.
Dodd, E.
Dowse, H.
Doyle, T.
Entwistle, W. C.
Evans, E. P.
Eyre-Walker, W.
Fell, C. G.
Field, E. E. (*hon.*)
Grant, A. S.
Green, Miss E. G. G.
Green, H. E. B.
Griffith, Miss E. L.
Guest, H.
Harker, Miss D. I.
Hill, W. J.
Hull, H. J. P.
Hunt, E. H.
Hutchins, R. E.
Jones, W. H.
Kelly, W. J.
Kelly, W. S.
Kitchen, F.
Linton, Miss I.
Maccormac, M. C.
Mackintosh, Miss E.
Marsh, W.
Matthews, Miss W.
Mayne, G. W.
Middlehurst, F.
Neeves, A. E.
Norman, J. E.
Parrell, Miss L. D.
Pearce, R. A.
Pickhaver, Miss G.
Puzey, G. A.
Rogers, Miss K. L.
Sanders, J.
Scarlett, E. J.
Scott, Miss M. I.
Smith, F.
Stephens, J. V. J.
Stevens, Miss A. L.
Stevenson, C. (*hon.*)
Sutton, J. F.
Sykes, V. H.
Taylor, B. A.
Ware, Miss H. S.
Welburn, Miss K. E. M.
Wilson, R. O.
Winsor, A. E.

English History.

Ashman, E. T.
Atchison, F.
Benney, W. E.
Birch, H. J.
Black, Miss A.
Bramwell, Miss M. L.
Burden, H. W.
Butterworth, Miss S. E.
Cheevers, Miss F.
Clarke, H.
Counsell, T.
Crimp, Miss D. G. (*hon.*)
Datson, A.
Davey, J. G.
Dawes, Miss A. E.
Dean, Miss B.
Dowse, H.
Doyle, T.
Entwistle, W. C. (*hon.*)
Field, E. E.
Fleming, E.
Gardner, Miss G. O.
Gill, T. G.
Grant, A. S.
Green, G. T.
Green, H. E. B.
Guest, H.
Hammond, Miss E. L. (*hon.*)
Hatcher, H. H.
Hill, W. J.
Hobley, Miss L.
Hull, H. J. P. (*hon.*)
Hunt, E. H.
Kelly, W. S.
Kimpton, Miss G.
Kitchen, F. (*hon.*)
Maccormac, M. C.
Mainhood, A. E.
Matthews, Miss W. (*hon.*)
McCormick, T.
McParland, M.
Middlehurst, F.
Mockett, H.
Molson, Miss C.
Morgan, P. A. (*hon.*)
Neeves, A. E.
Norman, J. E.
Pearce, R. A.
Pearson, W. H.
Riches, P. G.
Roberts, E. J.
Scott, Miss M. I.
Squire, Miss E.
Steedman, Miss M.
Stephens, J. V. J.
Stevens, Miss A. L.
Stevens, Miss F. E.
Stevenson, C.
Sutton, J. F.
Tate, R. L. P.
Taylor, B. A.
Warren, E. L.
Wilson, R. O.
Wood, A. J.

Geography.

Ashman, E. T.
Atchison, F.
Birkenhead, H. T. G.
Black, Miss A.
Burden, H. W.
Butterworth, Miss S. E.
Cox, F. V.
Datson, A.
Davidson, G. G.
Dean, Miss B.
de Gruyther, T. D. D.
Dowse, H.
Entwistle, W. C.
Field, E. E.
Fleming, E.
Gill, T. G.
Grant, A. S.
Hawke, J. A.
Hill, W. J.
Hull, H. J. P.
Mainhood, A. E.
Morgan, P. A.
Neeves, A. E.
Rimmer, J.
Scott, Miss M. I.
Squire, Miss E.
Stephens, J. V. J.
Sutton, J. F.
Tate, R. L. P.
Toyer, A. M.
Webley, C. E.
Wilson, R. O.
Winsor, A. E.
Wyatt, J. C.

Arithmetic.

Atchison, F.
Bates, A. D.
Beale, Miss B.
Bentley, R. P.
Beyaert, Miss J.
Bramwell, Miss M. L.
Bullough, F. W.
Burden, H. W.
Butterworth, Miss S. E.
Datson, A.
Dawes, Miss A. E.
Doyle, T.
Entwistle, W. C.
Field, E. E.
Grant, A. S.
Guest, H.
Hammond, Miss E. L.
Harker, Miss D. I.
Harman, A. G.
Hill, W. J.
Hull, H. J. P.
Hunt, E. H.
Jenkin, W. J.
Keast, Miss A. E.
Maccormac, M. C.
McCormick, T.
McParland, M.
Morgan, P. A.
Neeves, A. E.
Pearce-Batten, W. H.
Pearson, W. H.
Peck, F.
Rogers, Miss K. L.
Rowland, J. W.
Sanders, J.
Scott, Miss M. I.
Semmens, W. H.
Shuttleworth, A.
Stevens, Miss F. E.
Stevenson, C.
Sutton, J. F.
Tate, R. L. P.
Taylor, B. A.
Ware, Miss H. S.
Washington, J. H.
Weaver, W. R.
Wevell, A.
Wilson, R. O.
Winsor, A. E.

Mathematics.

Licentiateship.

Amesbury, J.
Butler, J. H.
Cunliffe, W. E.
Guy, B. B.
Hemmings, F. J. (*hon. geometry and conics*)
Hunt, E. H.
Johnston, H. P. (*hon. algebra*)
Norton, N. H.
Riordan, J. E.
Robinson, W.
Roff, G. A.
Rowland, J. W.
Seddon, J.
Shepherd, E.
Sutcliffe, T.

Associateship.

Atchison, F.
Atkins, T.
Birkenhead, H. T. G.
Bullough, F. W.
Cox, F. V.
Datson, A. (*hon. algebra*)
de Gruyther, T. D. D.
Doyle, T.
Gill, T. G.
Goodland, A. J.
Goodman, Miss H. B.
Grant, A. S.
Green, H. E. B.
Guest, H. (*hon. algebra*)
Hart, A. H.
Hill, W. J.
Hull, H. J. P. (*hon. algebra*)
Kelly, W. J.
Kennedy, C. J.
Mainhood, A. E.
McParland, M.
Middleton, D. H.
Morgan, P. A.
Norman, J. E.
Pearson, W. H.
Roden, H.
Self, Miss F. L.
Semmens, W. H.
Shuttleworth, A.
Stephens, J. V. J.
Tate, R. L. P.
Towers, T. S.
Toyer, A. M.
Warren, E. L.
Wevell, A.
Wharton, G.
Widdowson, M.
Winsor, A. E.
Wood, A. J.

Algebra.*

Licentiateship.

Whittaker, J. H.

Associateship.

Newington, G. C.

Languages.

e. = Higher English.
f. = French, *g.* = German,
i. = Italian, *l.* = Latin.

Licentiateship.

Cruickshank, R. *e. f.*
Dennys, Bro. *f.* (*hon.*) *i.*
Hambly, W. D. *e. f.*
Harker, Miss D. I. *e. f.*
Hunt, E. H. *f. l.*
Lancaster, C. *e. f.*
Tichelly, F. *f.*(*hon.*) *g.*(*hon.*)

Associateship.

Ashman, E. T. *f.*
Bates, A. D. *f.*
Calcott, H. N. H. *f.*
Crimp, Miss D. G. *l.*
Green, G. T. *f.*
Hoad, Miss A. M. *f.*
Hobley, Miss L. *f.*
Macarthur, M. *l.*
Pook, Miss F. E. *f.*
Rogers, Miss K. L. *f.*
Siddall, Miss G. *f.*
Stepney, Miss E. E. *f.*
Stratford, Miss A. T. *f.*
Welburn, Miss K. E. M. *f.* (*hon.*)
Willder, Miss A. B. *f.*
Wilson, R. O. *f.* (*hon.*)
Wyatt, J. C. *f.*

Science.

a. = Astronomy.
b. = Botany.
ch. = Chemistry.
g. = Geology.
m. = Mechanics.
p. = Experimental Physics.
ph. = Animal Physiology.

Licentiateship.

Gaskin, H. *ph.g.*
Hunt, J. *ph.b.* (*hon.*)
Norton, N. H. *p. b.* (*hon.*)
Pinching, Miss O. E. *ph.b.* (*hon.*)
Robinson, W. *m.ch.*
Roff, G. H. *m.ph.* (*hon.*)
Rowland, J. W. *p.ch.*(*hon.*)
Seddon, J. *p.m.*
Shepherd, E. *p.ch.* (*hon.*)
Sutcliffe, T. *ch. ph.*
Tongue, Miss B. *ph.b.*
Waller, J. *a.ph.*

Associateship.

Black, Miss A. *ph.b.*
Bramwell, Miss M. L. *ch.ph.*
Counsell, T. *ph.g.*
Ludford, Miss A. H. *ch.ph.*
Matthews, S. J. C. *ph.b.*
Ramsay, A. M. *ch.ph.*
Rimmer, J. *ch.ph.*
Scott, Miss M. I. *ch.ph.*(*hon.*)
Steedman, Miss M. *ch.* (*hon.*) *b.*
Sutton, J. T. *ch.* (*hon.*) *ph.*
Weaver, W. R. *ph.b.*

* Under old Regulations.

Diplomas were awarded to the following, who had satisfied all the prescribed conditions :—

LICENTIATESHIP.

Benians, P. S.
Butler, J. H.
Cooper, J. G.
Cunliffe, W. E.
Dodd, Miss J. A.
Evans, W. A.
Galbraith, M. H. A.
Hambly, W. D.
Hughes, B.
Lancaster, C.
Riordan, J. E.
Rittenberg, R. J.
Robinson, W.
Roff, G. A.
Rogers, C. W.
Rowland, J. W.
Seddon, J.
Shepherd, E.
Swift, J. A.
Thomas, T. J.
Waller, J.
White, A. J.
Williams, H.

ASSOCIATESHIP.

Abrahams, P.
Atchison, F.
Bates, A. D.
Beale, Miss B.
Benney, W. E.
Beyaert, Miss J.
Boyle, Miss J.
Briden, A. C.
Brown, W. J.
Butterworth, Miss S. E.
Chance, J.
Clarkson, J. J.
Counsell, T.
Dodd, E.
Dowse, H.
Drakeley, Mrs. C. M.
Entwistle, W. C.
Evans, A. E.
Evans, E. P.
Finch, G. J.
Fowler, Miss G. E.
Frayer, Mrs. A. M. E.
Gibbons, Miss A. M.
Goodman, Miss H. B.
Grant, A. S.
Green, Miss E. G. G.
Green, G. T.
Griffiths, W. H.
Hammond, Miss E. L.
Hargreaves, Miss R. B.
Hart, A. H.
Heward, G.
Hill, W. J.
Irving, R.
James, Miss A.
Kitchen, F.
Laugher, J. H.
Lowe, Miss H. H.
Lucas, E.
Mainwaring, R.
Marchant, P. J.
McMillan, W.
Miles, Miss Clara.
Mitchell, J. W.
Mockett, H.
Moffatt, M.
Newington, G. C.
Osborne, J. P.
Parrell, Miss L. D.
Paul, W. J.
Price, Miss A. G.
Ramsay, A. M.
Riches, P. G.
Roden, H.
Sanders, J.
Scott, Miss M. I.
Smith, A. R.
Smith, Miss S. E.
Sparshott, T. E.
Squire, Miss E.
Stepney, Miss E. E.
Sutherland, J. H. C.
Sutton, J. F.
Sykes, V. H.
Taylor, Miss A. B.
Vaughan, W.
Wallis, Miss M. A.
Warren, E. L.
Washington, J. H.
Webley, C. E.
Westgate, Miss C. M.
Widdowson, M.
Wilson, R. O.
Wragg, J. W.

Prizes were awarded to the following :—

For **Theory and Practice of Education**, to Thomas Searle Barnes.
For **Mathematics**, to Frederick James Hemmings.
For **Natural Sciences**, to Ernest Shepherd.

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THE RELATIONS OF SCIENCE TO INDUSTRY AND COMMERCE.

(*Continued from page* 410.)

III.—The Views of the Industrial and Commercial Firms.

Answers to my inquiries have been received from a considerable number of large shipowners, from a few large shipbuilders, from nearly all the great railway companies, from a good many banking and insurance companies, from manufacturers of all kinds, and from employers' federations, representing very large interests.

Almost all explain their preference for elementary-school boys in such a way as to pay a well deserved compliment directly to the adaptability of the elementary-school boy, and indirectly to the existing system of elementary education. A good many speak in high terms of the value of evening schools, including technical institutes and schools of art. Banks and insurance companies almost invariably (but other firms as well) seek for the secondary-school product. There is some call for the men trained at the highest institutions, but this call is so much confined to firms whose works or business requires technical skill that it is fully evident that the others do not yet feel the need for such men, nor know how to use them. There appears, also, with some frequency, the traditional fling at the public schools and at the Universities.

Catch the boy as he leaves the elementary school; induce him to attend evening classes; add to that the training of the workshop or the business house, and you have the fairly common plan of training those who will rise above the rank of "hands." From the best of these come the foremen; from those in turn the sub-managers are selected, and so on. It is interesting to see, however, that the possibility of a change is not unforeseen.

> It happens [says one of our greatest industrial leaders] that at the present moment all the men who fill the positions of responsibility in our office come from elementary schools. Naturally, they belong to a period when secondary schools were not so accessible as now, and probably the same remark may not be applicable to their successors.

There is much dissatisfaction with the existing system in those trades or industries in which apprenticeship was once common. "Time off" is occasionally allowed to attend day technical classes. But there is evidence that such a plan of training would not be generally acceptable, and I am told by one representative of a large set of interests that

> the whole question of the method of teaching boys their trade in and on the works seems in need of reform; . . . it is hardly possible for anything to be done in this way except by some compulsory scheme affecting all employers;

and by a representative of another vast set of interests that,

> as a matter of fact, the whole question of technical education is so unavoidably mixed up with the apprenticeship question in such a form as to make it impossible to deal with one without the other. Furthermore, the apprenticeship question is so clouded by the conflicting interests of the various unions, the unsatisfactory state of the law as regards employers, and other difficulties, that nothing short of a far reaching Parliamentary scheme is likely, so far as my experience goes, to materially alter the situation.

The markets call emphatically for the "practical" man. A view more sympathetic with higher education, and not altogether uncommon, may be stated thus: A man with practical training alone can do much; a man with technical training alone can do little; a combination is, therefore, essential. If only one can be had, which would be regrettable, that must be the practical man.

While, as I have already said, employers generally express the highest appreciation of the value of evening schools, technical institutes, and schools of art as supplementary to the workshop, the factory, and the office, there is a good sprinkling of severe criticism. It is alleged that the schools are not practical, and that teachers of art as well as of science display much ignorance of the manufacturing process and of the limitations imposed by materials, machinery, and generally of the conditions of work and organization necessarily enforced in a commercial business. This is, of course, no new view. It has been expressed to me all over the three Kingdoms, and I fear there is much truth in it. Part of the ignorance is due to the exclusiveness of the manufacturer, who dreads the theft of his secrets. But the impression left on the employers is partly the fault of the schools. It was one of the defects of the technical education movement that it was hasty and tumultuous. Schools were not graded; teachers and institutes set up claims impossible of fulfilment, and the British public misunderstood. Hence the doing, unfortunately not yet ended, of much mischief, which has had to be repaired.

This is, perhaps, the best place to draw attention to one of the commonest features of the employers' views. They think that evening schools, technical institutes, and schools of art may help the individual pupil; it does not enter their minds that such schools may aid their industries. I have devoted more attention to the elementary side of technical education than might, at first sight, appear necessary. My object has been to show what the employer thinks of what he comes most in contact with. His views in that respect may serve as a guide to the kind of appreciation he is likely to give to that of which he knows less.

I am much disappointed to find that a works (of a technical character) employing thousands of skilled workmen, with a world-wide reputation, says: "The men technically trained up to twenty to twenty-two years of age employed by us are comparatively few in number, and are generally such as have had special introduction to us." And I am also much surprised to find a large and well known firm of engine makers saying, "We have never had any application from the Universities." Another firm, whose name is a household word, says: "There are no proper —— schools [naming an important and common article of commerce which forms the subject of large industrial works] in this country such as are found on the Continent; so it would be difficult for us to get properly trained men of twenty to twenty-three years af age straight from the University to fill the highest posts in our business." On the other hand, a professor of chemistry at a University in which great stress is laid on the value of chemical research, says: "It is, perhaps, an index of the slender relationship between commercial chemistry and scientific work to state that, although all the research done in my laboratory is in —— [using exactly the same term as the firm], I have never had a single inquiry for a chemist from a manufacturer producing or using these compounds." I hope to serve as a labour exchange between this laboratory and that factory. There is, again, a common impression that the training in the Universities and higher institutions is not sufficiently practical, and much fear is expressed that the University man would not care for the continuous and laborious routine of commercial life. A gigantic Association in the north of England, with extensive business ramifications all over the world, and at whose works considerable chemical knowledge and a general scientific training are necessary, says:

> For our works, the youths who come to us have had a public-school or grammar-school education of modern type. They are taken from school and sent to the works for twelve months, after which, if they show ability, it is arranged that they should take a three-years' day course at a technical school and obtain the degree of B.Sc. They then go to our own laboratory, and a training specially suitable to our requirements is given to them.

They add:

> Provided a youth appears to be energetic, and not to have suffered materially from the defects often induced by such a course, we should, upon the whole, prefer a man who had been to a University. . . . For our best positions in the commercial departments we prefer boys of eighteen or nineteen from good public schools [I think it is the Manchester Grammar School type which is in mind] to those who are younger, and we are equally glad to have University men, provided they are energetic and fond of work. Our opinion of the usual result of a course at the University is that it is not calculated to induce this spirit. The length of the vacations, and the great freedom enjoyed by undergraduates, do not form a good preparation for the absolute tie, the long hours, and the very short holidays of a business life.

This particular view was written in the North of England. Whether or not true as a criticism of some phases of our University life and work, it represents too common a view to be omitted. It is not true of some of our largest technical institutions, and I cannot think that it is true of the younger Universities. But it may serve to show these institutions what spade work they must undertake. Let me return to criticisms. A general manager of one of our great railway companies says: "We have in the past appointed a few University men, but it is not an experiment which we are repeating." On the other hand, the general manager of another large railway company says:

> In my opinion, no man is fitted for the higher posts in the engineering

world unless he has received a full University education, and it is a great advantage to a man in the industrial and commercial world if he has had, and has made proper use of, a University training.

And again by another:

The University or other technical institute curriculum does not enter into our estimate of the fitness of the individual. It is certainly in favour of the lad who has enjoyed it, but it is, after all, only a means to an end, and, unless it has been intelligently employed by the favoured student, the less fortunate lad with definite aim is not irremediably out of the running.

The head of a chemical manufacturing company, which employs University trained men, puts his views thus:

We invariably find that men who come to us with the highest technical qualifications, either from a technical institute or from the Universities, require a considerable time before they are able to utilize their knowledge practically. An analyst, for example, will take some time before he recognizes the fact that analyses must be done quickly and accurately, and that no mistake in analysis is permissible. With regard to experimental work, it is also some time before a University man can be got to distinguish between results which are likely to be of practical value and those of only theoretical interest. Some men acquire their experience very quickly; others very slowly or not at all.

One more quotation under this head. A consulting engineer with a large practice, who employs twelve University or technical college trained men, in addition to a large technical staff of a lower grade, says:

I am a thorough believer in University and scientific training; but there is, no doubt, considerable difficulty in combining the University and practical training.

The general absence of replies of any importance from salesmen and merchants not manufacturers may be taken as an indication that the minds of business men of that type are not interested in the problems presented to them by my letter of inquiry. The opportunities for the propagandist commercial traveller and for the economist have still to be developed. But, when the War Office and great railway companies make use of the School of Economics, other State and municipal departments and great corporations will, sooner or later, follow.

Finally, the industrial and commercial firms point out, as the colleges do, that other qualities than those which generally show in an academic career are necessary in the fields of commerce and industry. Those are the business or economic sense, alertness, capacity for work, loyalty to the firm's interests, push, perseverance, social qualities, including good manners towards clients, tact towards subordinates, and capacity to get the best out of them, and generally the power to control men and things. These qualities do not, as a rule, show early, and consequently firms should, in their own interests, make the basis of selection large and broad. Let me now give you two American points of view. The President of Chicago University passed on my letter of inquiry to the head of an engineering firm in Kansas City, who says:

In our offices, where we employ from twenty to twenty-five men, and in our field work, where we have twenty or thirty more, we make it a rule to take only graduates of the technical schools, except, perhaps, occasionally on field work. Once in a while we have taken in a young man as office boy, or a few general assistants who were not technical graduates; but they have generally left us either because they were not useful or because they desired to obtain a technical education. The first question that I ask any young man who applies to me for work is: "Where did you graduate?" If he says that he did not attend a technical school, I tell him that we have no place for him; and, if he says that he attended such a school for two or three years, but did not graduate, I advise him to go back and get a diploma. I am always suspicious about such applicants, because the reason that most men fail to get their technical degree is generally lack of ability or of application.

The young graduate must start at the bottom of the ladder and climb, for he has to obtain his practical knowledge by hard knocks. However, a bright graduate rises very rapidly in engineering, while the non-graduate very rarely rises at all above the position of draughtsman. Those in America who desire to undertake engineering without technical training obtained from the schools must for ever content themselves with being hewers of wood and drawers of water in the profession.

From the office of the Vice-President of the Canadian Pacific Railway comes the following statement:—

The demand for technical trained men in Canada and the United States has been so great that they have not been inclined, as a rule, to put up with the long period of work in minor positions which is necessary before a man has sufficient experience to fit him for a responsible position on a railroad. The consequence is that the majority of technical graduates who have entered our service have left after a few years to obtain more remunerative employment, but, on the average, those who have stayed with us have proven successful—certainly to a far greater extent than would have been the case had they not received their University training.

In concluding this section, let me say that many British manufacturers, especially those under younger management, are displaying their economic sense in a new and interesting direction. Firms manufacturing common commodities and employing thousands of hands have invited me to visit their works and have shown me that not only do they employ scientifically trained engineers and chemists, but they employ public-school men as managers; they employ on their permanent staff doctors and dentists for the sake of their hands; they provide much for the social and economic welfare of their workers, and generally they show that they take as much interest in the human as in the other material which comes into their works. And they do this not as philanthropists, but as business men. They find that in the interests of their business the human material, as much as the coal and the steel and the sugar and the flour, can respond with more efficiency to scientific and generally enlightened management.

IV.—What the Consuls Say.

It is impossible to ignore the unanimity of the story told by H.M. Consuls, and the experience and earnestness and sense of responsibility of the men who tell it. The main question submitted to them was this: It has been said from time to time that British firms—merchants, manufacturers, and so on—do not sufficiently apply scientific methods to the canvassing of the various markets of the world, and in particular that, as a rule, their travellers and agents do not know the language of those with whom they are dealing; that advertisements, prospectuses, and so on are published in English, with English weights, measures, and money terms; that British firms do not sufficiently study the needs of the markets; and that, in general, there is a want of activity and enterprise of the right kind. The answer is: "To a large extent true." And this answer is so emphatic, so unanimous, and withal so moderately stated and so clearly expressed, that it is not possible to regard it as incredible. The story is:—

British merchants and manufacturers (and British shipowners), until about thirty years ago, may be said to have had rather more than their share of the world's trade, and, comparatively speaking, made money so easily that they grew overconfident, relaxed their energies, and took little pains to improve their business methods as time went on and to learn from their competitors. It is only from about that time that they have begun gradually and slowly to realize, through the falling off of profits and through losing a share of the markets which they used to monopolize, that the traders and manufacturers of other countries—in particular those of Germany and of the United States—have made up their minds to have, and have already succeeded in obtaining, a larger proportion of the world's trade than was previously left to them by Great Britain.

Our leading manufacturers are so strong and their work of such excellence that they can push themselves in any market; but it is not the same with other firms, and if these were to amalgamate they would acquire great strength. Co-operation is adopted in our shipping business with marked success and should serve as an example for other industries.

The Britisher believes in competition and the survival of the fittest. The results, it is alleged, are a limited number of robust units and a mass of mediocrity which cannot resist foreign co-operation either in the home or foreign markets.

The great trouble is the lack of enterprise on the part of British firms in sending out travellers. Lamentation on this head is loud and frequent. Figures for two European countries are given to me. The first country is eminently suited for trade with England, more especially just now when the two countries have so much in common and when "things English" are so much in vogue. The total number of commercial travellers' licences issued at "A" (the capital) during 1909 was 1,203. During the same year 357 licences taken out at other towns were presented to the "A" police for *visa*. The 1,203 licences were issued as follows:—To German commercial travellers, 605; to British, 142; to other nationalities, the remainder. Of the 357 the Germans had 146, the British 37; the remainder were distributed among various nationalities. The other country is also one which would appear to be eminently suited for

British trade. In the year 1908 (the figures for 1909 were not available), 7,000 commercial travellers visited this country: 4,700 were of German nationality, 1,500 French; 61 represented Great Britain, the rest various.

In general there is no complaint against the natural qualities of the British traveller.

A smart British business man, accustomed to travel and deal with foreigners, has no equal the wide world over; but alas! there are too few of them.

Another says:

As regards the other qualities—push, activity, enterprise, and so on—they all seem to exist in such satisfying degrees in the British commercial man that if he would direct his attention to rectifying the faults arising through this insular attitude, and the lack of commercial education which so narrow his outlook, the future would then look at least as hopeful as it does in any other country.

A third maintains:

There is no inherent quality in the Britisher which prevents his being able to compete successfully not only in capturing new markets, but also in ousting his rivals who have been there before him. On the contrary, he possesses in as great as, if not in a greater degree than, any other nation just those qualities which eminently fit him for such work—endurance, perseverance, reliability (a very great adjunct), and concentration.

And so on.

Until by scientific education the British realize that commerce means an intricate and complex organization of intimately interconnected parts, they will lose many an opportunity, and their Consulates and Chambers of Commerce will be unable to do for them the work which could easily be done. Engineering, it is pointed out to me, is looked upon as a science, but commerce is not.

Failure to adopt the metric system places British manufacturers at a decided disadvantage. A French merchant, accustomed to one system of weights and measures, uniform and exact, resents receiving quotations from England in quantities which are absolutely mysterious to him. Circulars and price lists, printed only in English, with English weights, measures, and prices, are often sent to the Continent of Europe, sometimes beautifully, even artistically, printed and illustrated; but they are of no practical use, as they are not understood by the persons for whose inspection they are intended. Only in cases where it is known that some member of the foreign firm is well acquainted with English, or has already dealt with English firms, can any practical result be looked for by sending out English catalogues. Further, a good deal of delay and inconvenience is sometimes caused at the Custom House through the use of the English system of weights and measures, owing to the fact that all weights and measures have to be reduced to the metric system before the goods are cleared.

Foreigners will not buy goods simply because they are British. The man who wishes to sell, and to increase the number of his clients, must seek the goodwill and favour of the buyer and not look to the buyer so much to accommodate himself to the ideas and business rules of the manufacturer. Enough stress cannot be laid on the vital importance of personal acquaintance with the country, the people, their customs, needs, weaknesses, likings, and prejudices; and also with the local methods of doing business—in short, with everything and anything that can and does affect the market. In this connexion I would like to recall what Lord Cromer said to Lord Reay's Committee on the Organization of Oriental Studies in London: "It is quite possible for an Englishman to pass half his life in the East and never understand anything about Easterns."

If the requirements, industrial and commercial, of any country are to be thoroughly understood, a knowledge of the language of that county is essential. One Consul says: "I have seldom met a foreign traveller who does not speak one or two languages besides his own." Another says: "I have very seldom, I might say almost never, met an English commercial traveller who knew a word of ——" (the language of the European country from which he writes). If I were at liberty to identify the individual, by naming the country, it would be seen that his statement, while appearing incredible, would really appear to be highly credible. Another Consul says—and others write to the same effect:

Lastly, but perhaps first in importance, is the fact which cannot be brought home too strongly to every young commercial man—viz., the absolute necessity of learning foreign languages. English, it is true, is spoken everywhere abroad, and, although fresh business may possibly be secured in foreign countries by men who speak nothing but English, the circumstances are exceptional, and point to the fact that the goods are absolutely wanted and none others, and not to any special acumen on the part of the salesman. The majority of travellers, however, have goods to offer which are by no means unique and in the sale of which they will have to compete very severely with rivals. The case of the man in this country [an extensive country, with large trade possibilities] who speaks nothing but English is too obvious to need any elaboration.

I will add but one further quotation:

Until it is realized in the English system of education that modern languages are useful as means of communication between persons, and are not merely theoretical subjects in which a knowledge of grammatical rules results in the pupil being awarded a prize, they will probably continue to be handicapped. I speak feelingly on this subject, as my own children have been able to converse comfortably in four or five languages, and, after two or three years at a first-class school, have since entirely forgotten how to use them, although two of the said languages are in their regular school course. I understand, for instance, that, although when conversing they use the subjunctive mood naturally and correctly after certain conjunctions, they are unable to write out a list of all the conjunctions which govern the subjunctive, and consequently they are made to spend their time learning this and suchlike rules instead of adding to their vocabulary, as an infant does, by daily practice.

The languages which these officers call upon the British traveller to learn are French, German, and Spanish. A knowledge of French will carry any commercial traveller through France, Belgium, Russia, Italy, and Switzerland, as well as through many parts of Germany. For Germany and Austria, German is necessary. Spanish is wanted for the Peninsula and the South American trade.

Let me repeat that the views set out above are not mine. They are those of His Majesty's Consuls at stations distributed over four continents.

V.—The Present Position and Needs.

I have now come to the last section of this paper. For fear of being misunderstood, let me say at once that I have no lack of respect for our ancient Universities, and that any appearance of such in this paper is quite unintentional. It would indeed be difficult to exaggerate the share which our oldest Universities have had in the formative life of this country, and the work of the past is still necessary. Universities must continue their detached work; they must pursue knowledge for its own sake or for the purely mental training it gives; they must continue to produce statesmen and churchmen and lawyers and doctors and schoolmasters, and they must educate the leisured classes. I would even go so far as to say that it is a national asset to have institutions setting the standard of efficiency and honour in national games. But the modern world needs something more, especially from the departments of applied science. The sympathy and support which these departments have received from the public have, to a large extent, been based on the belief that they would contribute to the success of national industry and commerce. The same holds true of the large technical institutions with day departments for young manhood. There is a public need, and in some cases a public demand. It is our object to increase the demand.

I have no magician's wand to offer as a means of revolutionizing public opinion, and I would like to make clear that I have no thought of advocating mere imitation of German methods, which would be extremely foolish, if not disastrous. The industrial and commercial conditions and the character and traditions of the people of Britain and Germany are dissimilar. Again, the German Universities endeavour to send out men ready to take their place immediately, not in the ranks, but as officers, in the industrial and commercial armies. Further, the British system of education is so different that not to give heed to what exists would certainly court failure. Many useful lessons may, however, be gathered from a study of German methods, but possibly our most useful lessons are to be gathered from America, where the character of the people is more like our own, and where it is clearly realized that, whatever training of the highest kind a man may have, he must still begin in the ranks and climb his way to the top. It has been said that British character and methods produce a few brilliant units and a mass of mediocrities. The surest road to success would probably be for the mass of mediocrities to adopt the methods of the brilliant units.

The normal attitude of the employers, if not of the public, may be expressed in three sentences: (1) Only those value higher education who have felt the need for it. (2) The purely practical man can do much, the purely theoretical man can do

little; a combination is therefore necessary. Should one quality only be obtainable, which would be regrettable, that quality should be the purely practical. (3) Teaching institutions may assist individuals to get on; they form no essential part of our industrial or commercial system.

For these three sentiments I suggest that we are all anxious to substitute three others: (1) Setting aside exceptions, every man who achieves success must give so much time to fit himself for his work, whether the time is given in college under guidance and discipline or is expended in self-education. (2) In the end, and again setting aside exceptions, the man who has received the highest training in college under guidance and discipline will, other things being equal, achieve by far the greatest success. (3) The work of research and training, as carried on in technical school and University college, is an integral part of any nation's successful industrial and commercial organization.

How is the substitution to be accomplished? The demand of the shareholders of an industrial or commercial concern for dividends forms a great stimulus to intelligence and activity on the part of the staff. Without such stimulus in a technical school or faculty of applied science, there is a tendency for things to become comfortable. I suggest the following:—

1. The management of all technical institutions and departments of applied science should therefore be put on a business footing. The ordinary governing bodies, as a rule, serve for ordinary governing purposes. The chief need is that of consultative committees attached to all specialized faculties or departments, such committees to be advisory and to be composed of industrial or commercial leaders or experts of the highest reputation. This is probably the best and surest means of enlisting the full sympathy of industrial and commercial leaders. The faculty or department, the curriculum and the examinations, would benefit by having its work and methods criticized sympathetically by experts of the first rank. Such a Committee would form the surest medium of communication between the college and the workshop; and its formation would certainly be followed by a wide extension of the appreciation of the advantages of technical education, because the captains of industry would learn exactly the character of the work done in college and how in practice to utilize it. The head of the teaching department and his staff would by this means gain easy access to factory and workshop and bring back some of their atmosphere to the laboratory. On the Examining Committee of the Engineering Department of the Glasgow and West of Scotland Technical College are the Engineering Director of the Fairfield Shipbuilding and Engineering Co. and the Engineering Director of John Brown & Co., Clydebank Shipbuilding and Engineering Works. Such men would probably be generally recognized as the leaders in their particular profession on the Clyde. I understand that it is their practice to look in great detail through worked papers and designs, and to give the Engineering Department of the college the benefit of their criticisms. Employers, parents, and students cannot but have faith in the instruction given in an institution so aided. Let me make it quite clear that I am not advocating a mixed governing body, but an Advisory Committee of experts attached to each technical department. Governing bodies should consult such Advisory Committees before appointing the head of a department or even the principal of a college or technical institution. In the qualifications of principals and heads of departments it is customary to give too much consideration to academic status and too little to industrial experience and business capacity. Such a consultative body as I have referred to would act as a corrective in this respect.

2. A connexion should be maintained with old students and a record kept of their after-careers. One of the means of success of the American colleges is the list of after-careers of their students. It is almost incredible how little has been done in Britain in this respect. I hope parents, and the public generally, will develop a habit of asking for such a list.

3. At each technical institution and University there should be an organization to assist students in getting placed. The Blue book recently issued by the Board of Education shows how much English Universities have in the past neglected this aspect of their work, and how much there is still to be done to establish appointments committees or bureaux. I am not overlooking the fact that much excellent work has been done by individual professors, and occasionally by the secretary or the principal. But this was unorganized. I am asking for an organization. The manufacturer and the merchant have been denounced in no measured terms by representatives of learning for their short-sightedness in not applying scientific methods to manufacturing and business processes. Could not the manufacturer and the business man retaliate that not only have University and technical college goods been of such various qualities that it was impossible to discriminate, but also that scientific principles—even common business empirical methods—have not been applied to the marketing of school and college products? It is a discredit to the Universities and technical colleges that they have so long neglected this obvious means of assisting students—this obvious means of promoting the cause they proclaimed.

4. A change in curriculum and in degree requirements. Let me read some remarks on American colleges which I wrote in 1904:

> Again, there is, in each American institution, a considerable "mortality" or shedding of students. Some students find their general preparation insufficient, some find the pace too great, others find their funds give out, and some are advised that they have made a bad selection. In such cases the American student accepts advice and acts promptly. At every step a student's work is known, and the Faculty—staff of professors in each department—every four months discuss fully a student's work. The middle of the third year is the critical point in a student's career. At this stage the requirements of the Institute of Technology demand a final decision as to choice of work. Fifteen men in one department were, at this point, recently advised to change their courses or to withdraw from the Institute I was informed that, as a rule, 25 per cent. of the civil engineering students drop off at the same stage. These numbers have to be added to those who have previously "fallen by the way." The greatest patience is extended to the students, and the best advice is offered to them; but, in the interest of the individual and of the standing of the Institute and of its influence on industrial work, such shedding of students is regarded as inevitable and is acquiesced in. It does not follow that the men are "wasted." As a rule they find employment of a lower character than they were aiming at; they change the directions of their careers to their own great advantage or they pursue a course of studies on the same lines at a secondary institution—a two-year course school.

It appears to me that such kind of advice and action is necessary in British teaching institutions, but it is hardly possible under existing conditions.

5. Another means of bringing the college classroom and laboratory into closer connexion with factory, workshop, and office would be more liberal provision of short and specialized courses, suitable to the heads of firms or their successors. I am not referring to that provision of evening courses which is made in technical schools and schools of art, but to provision, whether day or evening, of advanced courses for industrial and commercial leaders, or their successors, in institutions which there could be no presumed loss of self-respect in attending. Such courses are provided at several colleges; they need multiplication. I know that a large number of able men obtain, at much expense, instruction through private agencies because the best institutions do not appear to cater directly for their needs under suitable conditions.

6. As to modern languages, three things are necessary for the majority of students: (1) Less the scholar's and more the utilitarian point of view; (2) more concentration during the later school and college years; and (3) speaking generally, a better class of teachers.

In conclusion, let me say that this preliminary study of a very large question has disclosed much hopefulness of the future. The obstacles which University and other highly trained men encounter in getting a footing in the industrial world are still formidable, and the breaking down of the barriers between our highest teaching institutions and commercial life forms a specially difficult task. But there is plenty of need for first-class men, and there is not much difficulty in getting the exceptionally good man placed. It is gratifying, too, to find that his Majesty's Consuls speak in the highest terms of the personal qualities of our foreign commercial travellers.

On the side of education, too, there is much hopefulness. A distinguished University writer not long ago stated that the object of University education "was not how to keep our trade, but how to keep our souls alive." Between such a representative of University education and the business man who inquires what is the money value of a degree there is little room for accommodation. But the writer did an injustice to the Universities, and the facts as to the objects of University education are against him. It may be true that, in the long view, the keeping of our souls alive is the object of University education; but even the oldest of our Universities are becoming conscious that the immediate condition of saving our souls alive is that of saving our trade.

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CURRENT EVENTS.

Fixtures.

At the meeting of the members of the College of Preceptors on Wednesday, November 16, Mr. J. Blake Harrold, A.C.I.S., F.R.C.A., will give a lecture on "Book-keeping, and how to Teach it."

* * *

M. Henri Chatelain, Docteur ès Lettres, will address the Société Nationale des Professeurs de Français en Angleterre at the College of Preceptors on November 26 at 4 p.m. Subject: "Zamacoïs et Rostand: La Fleur Merveilleuse, étouffée par Chantecler."

* * *

The following lectures will be given under the auspices of the Child Study Society at 90 Buckingham Palace Road:—November 3, "Story of some Children's Games," by Mrs. Laurence Gomme; November 17, "The Origin of certain Games and Toys," by A. C. Haddon, M.A., D.Sc., F.R.S.; November 24, "Philosophy of Boy's Games," by Felix Clay, F.R.I.B.A.; December 1, "The Child's Inheritance," by C. W. Saleeby, M.D., F.R.S. Edin.

* * *

Miss C. von Wyss will lecture to the School Nature Study Union, on "Life in Rock Pools of the Seashore," on November 4; Prof. Oliver, on December 2. Particulars from the Hon. Secretary, 1 Grosvenor Park, Camberwell, S.E.

* * *

The Annual Council and General Meetings of the Incorporated Association of Assistant Masters in Secondary Schools will be held at University College School, Frognal, Hampstead, N.W., on January 11–13.

* * *

The new buildings of the Chemical and Physiological Departments in Bristol University will be opened by Lord Winterstoke, Chancellor of the University, on November 15.

Honours.

In connexion with the Centenary of the University of Berlin, honorary degrees were conferred upon the Emperor William, Prince Rupert of Bavaria, the Imperial Chancellor (Herr von Bethmann-Hollweg), the late Colonial Secretary (Herr Dernburg), and a large number of eminent Germans. Together with many Ministers, State officials, and teachers, the list includes the names of the painter Hans Thoma, the musician Max Reger, the sculptor Touaillon, Frau Cosima Wagner, and industrialists and financiers like Herr Rathenau and Herr Simon. Among the foreigners upon whom honorary degrees have been conferred are Profs. Evans and Vinogradoff, Oxford; Prof. W. J. Ashley, Birmingham; Prof. Jackson, Cambridge; Prof. Moulton, Manchester; and Mr. Lazarus Fletcher, Director of the Natural History Museum, South Kensington.

* * *

The University of Cambridge has conferred the honorary degree of M.A. upon Mr. A. H. Mann, Mus.D. Oxon., of King's College, University Organist.

The University of Durham has conferred the following honorary degrees:—

D.C.L.: Mr. F. W. Dendy, Registrar of the County Court, Newcastle, and District Registrar of the High Court of Justice.

D.Sc.: Mr. S. J. P. Thearle, Chief Ship Surveyor to Lloyd's Register of British and Foreign Shipping.

M.A.: Mr. Basil Underton, B.A., Chief Librarian of the Public Libraries, Newcastle.

* * *

The Cape University will confer the honorary degree of LL.D. upon the Duke of Connaught on the occasion of his visit to South Africa.

* * *

Lord Robson, late Attorney-General, has been elected an Honorary Fellow of Gonville and Caius College, Cambridge.

* * *

The University of Bristol has conferred the honorary degree of D.Sc. upon the retiring Vice-Chancellor, Prof. Conwy Lloyd Morgan.

* * *

A memorial tablet to the late Prof. Edward Caird will be unveiled in the Moral Philosophy classroom in Glasgow University on November 12.

* * *

A portrait of Emeritus Professor Jack, painted by Sir James Guthrie for subscribers, has been accepted by the University of Glasgow.

Endowments and Benefactions.

Cambridge University has received £20,000 from Sir Harold Harmsworth to endow a Chair of English Literature, and £23,000 from the Drapers' Company to build and equip a new Physiological Library.

* * *

Miss Julia Lucy Woodward, of The Knoll, Clevedon, has left one half of the net proceeds of the sale of certain properties to Trinity College, Cambridge, to endow a scholarship; £500 to the Bristol Central Reference Library; £500 to the Taunton Castle Literary and Archæological Society; and £1,000 to Bristol University, to found a scholarship.

* * *

In commemoration of the hundredth anniversary of the opening of Berlin University a Centenary Fund for the Development of Special Research within the University has been instituted, and already some £500,000 has been subscribed. Dr. Hans Meyer, of Leipzig, the well known geographer and Colonial politician, has given £7,500 towards the endowment of a Chair of Colonial Geography.

* * *

Armstrong College starts as a separate institution from the University of Durham with a deficit of £13,495.

* * *

Bristol University has received a bequest of £1,000 under the will of the late Miss Woodward, of Clevedon, to establish scholarships, preferably in Music and Botany. Also a gift of some 900 volumes, chiefly classical and oriental, many of them rare and valuable, from Miss Baynes, of Weston-super-Mare.

* * *

Hartley College, Southampton, requires "£40,000 or £50,000 to make a beginning." Some £6,000 has been promised, including £2,000 from Sir George Cooper, Vice-President of the College, and £1,000 each from Mr. C. G. Montefiore, Acting President, and Mr. W. E. Darwin, Treasurer. Certain lady friends at Bournemouth propose to bequeath £10,000, provided the University status of the College be preserved.

Lord Rendel has sent his eleventh annual cheque for £1,000 to the University College of Wales, Aberystwyth.

* * *

The late Mr. James Hunter, merchant, Banchory-Ternan, has left £400 to found a bursary in Aberdeen University.

* * *

A portrait of Emeritus Professor Ogston, subscribed for by medical graduates throughout the world, has been presented to the University of Aberdeen.

* * *

A sum of £250, surplus of the subscriptions for the portrait of Emeritus Professor Jack, has been applied to the foundation of a prize for the best thesis on a mathematical subject for the degree of D.Sc. in Glasgow University.

* * *

The Committee of the Home and School for the Sons and Orphans of Missionaries, Blackheath, appeals for £10,000 to complete the purchase of Eltham College. The Old Boys of the school intend to subscribe at least £1,000, and Mr. W. H. Lever, M.P., and Mr. S. Hope Morley have each given £500.

* * *

The Heritage School of Arts and Crafts for Crippled Boys, Chailey, Sussex, requires alterations and extensions that are calculated to cost £5,000, half of which has been promised or guaranteed conditionally on the raising of a sufficient sum. The Hon. Treasurers are Lord Llangattock and Miss Alice Rennie, 36 Westbourne Terrace, Hyde Park, W.

Scholarships.

The next combined examination for sixty-seven entrance scholarships and a large number of exhibitions at Pembroke, Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges will begin on December 6. Mathematics, Classics, and Natural Sciences will be subjects of examination at all the above-mentioned colleges. Scholarships and exhibitions will also be offered for History at Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges; for Modern Languages at Gonville and Caius, King's, Christ's, St. John's, and Emmanuel Colleges; and for Hebrew at Gonville and Caius and St. John's Colleges. Age not more than nineteen on October 1. Admission forms and further information from W. S. Hadley, M.A., Pembroke College; the Master, Gonville and Caius College; W. H. Macaulay, M.A., King's College; A. Gray, M.A., Jesus College; Rev. J. W. Cartmell, M.A., Christ's College; the Master, St. John's College; the Master, Emmanuel College.

* * *

The George Mence Smith Scholarship, £26 a year for two years, at the Royal Academy of Music is open in January. Age, under twenty-three (males) or twenty-one (females). Apply by December 15.

* * *

The Council of the Institution of Civil Engineers are prepared to consider applications for a nomination to the Palmer Scholarship (Cambridge University), £40. Nominee must be son of a civil engineer. Regulations from the Secretary, Great George Street, Westminster, S.W.

Appointments and Vacancies.

Dr. C. B. Heberden, Principal of Brasenose College, has been appointed Vice-Chancellor of Oxford University for the ensuing year.

* * *

Dr. J. N. Keynes, Sc.D., Secretary of the Local Examina-

tions and Lectures Syndicate, University Lecturer in Moral Science, late Fellow of Pembroke College, has been elected Registrary of the University of Cambridge, in room of Mr. J. Willis Clark, resigned (since deceased).

* * *

THE Mastership of Christ's College, Cambridge, is vacant through the lamented death of Dr. John Peile in his seventy-third year.

* * *

PROF. ERNEST GARDNER, Yates Professor of Archæology, University College, has been appointed Censor of Studies to Candidates for Higher Civil Service Appointments in the University of London.

* * *

IN Bristol University, Mr. J. W. Eaton, B.A., T.C.D., has been appointed Assistant Lecturer in French and German, and Mr. W. D. Henderson, M.A., B.Sc. Aberd., Ph.D. Freib., Senior Assistant Lecturer and Demonstrator in Zoology, Manchester University, Lecturer in Zoology.

* * *

THE RIGHT HON. R. SPENCE WATSON, LL.D., who was one of the Founders, has been appointed President, of Armstrong College, Newcastle-upon-Tyne, in succession to Dean Kitchin.

* * *

AT Reading University College, Dr. W. G. Duffield, B.A., D.Sc., has been appointed Professor of Physics in room of Dr. Burch (resigned through ill health); Mr. J. P. Clatworthy, B.Sc., Lecturer in Mathematics; Miss Grace Owen, B.Sc., Lecturer in Education in connexion with the training of teachers; and Mlle Salmon (daughter of Prof. Salmon), Assistant in Conversational French.

* * *

THE Registrarship of Cardiff University College is vacant through the resignation of Mr. J. Austen Jenkins, B.A. £400.

* * *

THE Council of Armstrong College, Newcastle-upon-Tyne invites application for (1) the Professorship of Modern Languages, (2) the Professorship of Modern History, (3) the Lectureship in Classics and Ancient History, (4) the Lectureship in English Literature. Professorships, £500; Lectureships, £150, rising to £200. Women as well as men are eligible. Apply to the Secretary by November 15.

* * *

THE REV. R. J. SEMPLE, M.A. (R.U.I.), Minister of Comber Congregational Church, County Down, has been appointed Professor of English and History in Magee College, Londonderry.

* * *

MR. G. DOUGLAS BROOKS, B.A., has been appointed Assistant Lecturer in Greek in Cardiff University College.

* * *

THE REV. G. PHILLIPS, Mansfield College, Oxford, has been appointed Principal of the United Theological College, Bangalore.

* * *

PROF. J. KAY JAMIESON, M.B., C.M., has been appointed Warden of Lyddon Hall, Leeds, in room of Mr. G. H. Rowe, deceased.

* * *

THE REV. THOMAS CHARLES FRY, D.D., Head Master of Berkhamsted School, has been appointed Dean of Lincoln.

Dr. Fry was born in 1846, and educated at Bedford Grammar School and at Pembroke College, Cambridge, of which he was a Scholar. After experience at Durham School (1868–70) and Cheltenham College (1870–83), he became Head Master of Oundle School in 1883, but resigned next year in consequence of illness. In 1886 he took charge of Wyke Regis, Weymouth, and next year went to Berkhamsted. Dr. Fry has been Chairman of the Executive Committee of the Church Reform League, President of the Incorporated Association of Head Masters, Select Preacher at Cambridge, &c.; and he has published numerous sermons and articles, as well as his well known "Old Testament History for Schools."

* * *

DR. W. MANSERGH VARLEY, M.A., D.Sc., Ph.D., Principal of the Technical School, Devonport, has been appointed Principal of the Technical School, Swansea. He is succeeded by Mr. W. S. Templeton, M.A., B.Sc., A.M.I.E.E., Fellow of the Physical Society, London, recently Professor of Physics at the Ceylon Medical and Technical Colleges.

* * *

DR. HENRY WREN, M.A., Ph.D., D.Sc., for the last six years chief assistant in the Chemical Department, Birkbeck College, has been appointed Head of the Chemical Department, Municipal Technical Institute, Belfast.

* * *

DR. GEOFFREY MARTIN, B.Sc., Ph.D., recently Assistant Lecturer at Nottingham University College, has been appointed assistant in the Chemical Department, Birkbeck College, London.

* * *

MR. A. E. MORGAN, Bristol University, has been appointed Assistant Lecturer in English at Exeter University College.

* * *

MR. ROBERT PETRIE, B.A., Assistant Lecturer in Philosophy, Manchester University, late Scholar and Jenkyns Exhibitioner of Balliol, has been appointed Lecturer and elected an Official Fellow of Queen's College, Oxford.

* * *

MR. RUSSEL L. JONES, M.A. St. Andr., has been appointed Lecturer in Economic History, and Mr. Arthur H. Muir, F.C.A., Lecturer in Accountancy, in the new Commercial Faculty of Belfast University.

* * *

MR. ALLAN MOTTRAM, B.Sc., Science Master, has been appointed Head Master, of the Congregational School, Caterham, in succession to the Rev. Horace Hall, resigned.

* * *

MR. HENRY GEORGE ABEL, M.A. Cantab., assistant master, Wakefield Grammar School, has been appointed Head Master of the County School, Barnstaple.

* * *

MR. JOHN ELLIOTT, M.A. Cantab., Mathematical Master County School, has been appointed Head Master of Market Drayton Grammar School. He is succeeded by Mr. Frank Reynolds, M.A. Cantab., second master of the same school.

* * *

MR. CHARLES IRWIN EVANS, M.A. Oxon., B.A. Lond., assistant master, Sidcot School, Winscombe, has been appointed Head Master of Leighton Park School, Reading.

* * *

MR. JOSEPH MANTON, M.A. Lond., assistant master, King Edward's High School, Birmingham, has been appointed Head Master of the Modern School, Maidenhead.

* * *

MR. O. ILLINGWORTH, B.A. Cantab., has been appointed Mathematical and Science Master in the Edinburgh Institution.

* * *

MR. R. DELL, B.A. Oxon., Assistant Master, Lutterworth Grammar School, has been appointed Science Master at Inverness College.

Literary Items.

MESSRS. A. & C. BLACK will shortly publish a work on "English Philosophy," by Mr. Thomas M. Forsyth, Edinburgh, giving an outline of the developments from Bacon to the present day. Also a new centenary edition of Thackeray's "The Four Georges," with portraits specially reproduced in colour facsimile from paintings by Sir Godfrey Kneller, Thomas Hudson, Allan Ramsay, and Sir Thomas Lawrence; and other illustrations.

* * *

MESSRS. LONGMAN have in the press "Educational Aims and Efforts, 1880–1910," by Sir Philip Magnus, M.P.

* * *

MESSRS. LONGMAN will publish shortly for the Association of Head Mistresses a book dealing with the Curricula and Aims of public secondary schools for girls, compiled under the direction of a Sub-Committee of the Executive of the Association. The papers on each subject have been prepared by a writer who has made that subject her special study, with the assistance of other experts.

* * *

MESSRS. RIVINGTON announce that Part IV of "Notes on British History" and of "Junior British History Notes," by Mr. William Edwards, M.A., Head Master of Middlesbrough High School, will be ready presently. The period covered is 1783–1900.

* * *

MR. FISHER UNWIN will issue shortly "The Unfolding of Personality as the Chief Aim in Education: some Chapters in Educational Psychology," by Mr. H. Thiselton Mark, Lecturer on Education in the Manchester University.

* * *

MESSRS. GURNEY & JACKSON have just commenced to publish "A History of British Mammals," by Gerald E. H. Barrett-Hamilton, B.A. Cantab., M.R.I.A., F.Z.S., in 24 monthly Parts (making 3 volumes), with 27 full-page plates in colour, 54 in black and white, and upwards of 250 smaller illustrations, drawn by Edward A. Wilson, B.A., M.B. Cantab.

* * *

THE *Child*, a new monthly journal devoted to child welfare, under the editorship of Dr. T. N. Kelynack, assisted by a representative staff of medical, educational, and philanthropic experts, has made a very promising start. It is published by Messrs. John Bale, Sons, and Danielsson, 83–91 Great Titchfield Street, Oxford Street, W.

* * *

IN the October number of *Modern Language Teaching*, Mr. W. G. Lipscomb writes an appreciative notice of the late Mr. Eve. Mr. Eve was one of the founders of the Modern Language Association.

General.

AT the annual examination held by the National Agricultural Examination Board, in September, there were 65 candidates—32 at the English centre (Reading) and 33 at the Scottish centre (Kilmarnock). Of these, 46 satisfied the examiners and received the National Diploma in Dairying.

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THE four hundredth anniversary of the birthday of Dr. John Caius was celebrated at Gonville and Caius College, Cambridge, on October 6.

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THE University of St. Andrews will celebrate its five hundredth anniversary in September next year.

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PROF. ERNEST RUTHERFORD, F.R.S., of Manchester University, opened the new Electrical Laboratory in Dundee University College (October 6).

THE DULLNESS OF SCHOOLMASTERS.

AT the Evening Meeting of the members of the College of Preceptors, on Wednesday, October 19, Mr. F. STORR in the chair, Prof. J. ADAMS read a paper on the above subject. He said:—

It might have been more polite to insert the legal safeguarding word, and speak of the alleged dullness of schoolmasters. But even the most enthusiastic admirers of our profession cannot deny that there are some dull schoolmasters; so the dullness may be treated as a fact, though there may be much to be said about its universality. Further, there may be those who want to know why the masters should monopolize our attention. Are there no dull mistresses? But it is convenient as a matter of grammar, if in no other way, to keep to the masculine. There are few circumlocutions so tiresome as that "he or she" phrase that is becoming so common. In what follows you are expected to select whichever sex you find fits the case.

To begin with, we must distinguish between stupidity and dullness. There are stupid teachers, no doubt, but their number is small indeed compared with the ranks of the dull. Stupidity may be regarded as natural slowness and bluntness of perception. The German *stumpfsinnig,* which may be translated as "blunt-sensed," gives a very fair indication of what is ordinarily meant by stupid. It is in this sense that the shrewd Ayrshire farmer maintained that a wife was none the worse for being a little stupid. On the other hand, it is hard to imagine any husband rejoicing in his wife being dull. The dull person is one who cannot use the gifts he possesses, who has no new way of looking at anything, who lacks any form of originality, who has no power of impressing his individuality upon others, who, in fact, *has* no individuality.

To some extent stupidity and dullness overlap. Stupid people are usually dull, though dull people are not necessarily stupid. Of the two, stupidity is the less amenable to treatment. Herbart tells us that the stupid man cannot be virtuous, and in desperation Schiller assures us that "against stupidity the very gods are powerless." Dullness is less obdurate. In fact Pope, who has made this subject his own, indicates the possibilities of the case when he uses the phrase "ductile dullness." There is a possibility, then, of the schoolmaster manipulating, if he cannot entirely remove, his dullness; and to this end he ought to consider the two aspects of dullness, the subjective and the objective. A man may be intensely stupid and yet be far from dull to and in himself. He is often thoroughly complacent, and quite enjoys a slowness of mental functioning that would drive quicker witted people mad. Subjectively he is far from dull, but objectively he is a centre from which dullness emanates. The distinction is important to the schoolmaster, and will be used later.

To do the public justice, it does discriminate between stupidity and dullness. Schoolmasters are not usually accused of stupidity. They are generally admitted to be technically intelligent, well-informed—in fact, too well informed—persons, who somehow cannot make any reasonable use of their intelligence and information. It is commonly taken for granted that a schoolmaster as schoolmaster is a bore. No doubt this assumption owes a good deal to the general impression that has come down to the man in the street—who, after all, is the maker of public opinion on such matters—from the old days that he spent on school benches, doing things that bored him intensely. But whatever the source of the popular impression it is deeply rooted and widespread. It is no longer a matter of controversy. The schoolmaster is definitively labelled dull.

In order to focus the general impression of the dullness of schoolmasters, we cannot do better than turn to the evidence of a man who spends a good deal of his time, and finds a certain amount of satisfaction, in girding at schoolmasters. Mr. H. G. Wells can hardly be regarded as a merely average unit in that whole that is called the public, and his evidence owes its value to the artistic skill with which he presents the extreme view. He is a specialist in the criticism of schoolmasters, and as such deserves our respectful consideration. His strictures are to be found in his works *passim,* but in the *Saturday Westminster*

Gazette for October 21, 1905, he contributes an article in which we find the following startling indictment:—

Now, it is a very grave thing, I know, to bring this charge against a great profession—to say, as I do say, that it is collectively and individually dull. But some one has to do this sooner or later. We have restrained ourselves and argued aside from the question too long. There is, I allege, a great lack of vigorous and inspiring minds in our schools. Our upper-class schools are out of touch with the thought of the time—in a backwater of intellectual apathy. We have no original or heroic school teachers. Let me ask the reader frankly what part our leading schoolmasters play in his intellectual world if, when some prominent one among them speaks or writes or talks, he expects anything more than platitudes and little things? Has he ever turned aside to learn what this head master or that thought of any question that interested him? Has he ever found freshness or power in a schoolmaster's discourse, or found a schoolmaster caring keenly for fine and beautiful things? Who does not know the schoolmaster's trite, safe admirations, his thin, evasive discussions, his sham enthusiasms for cricket, for fly-fishing, for Perpendicular architecture, for boyish traits, his timid refuge in "good form," his deadly silences? And, if we do not find him a refreshing and inspiring person, and his mind a fountain of thought in which we bathe and are restored, is it likely our sons will? If the schoolmaster at large is grey and dull, shirking interesting topics and emphatic speech, what must he be like in the monotonous, habitual classroom? These may seem wanton charges to some, but I am not speaking without my book. Monthly I am brought into close contact with the pedagogic intelligence through the medium of three educational magazines. A certain morbid habit, against which I struggle in vain, makes me read everything I catch a schoolmaster writing. I am, indeed, one of the faithful band who read *The Educational Times*. In these papers schoolmasters write about their business, lectures upon the questions of their calling are reported at length, and a sort of invalid discussion moves, with painful decorum, through the correspondence columns. The scholastic mind so displayed in action fascinates me. It is like watching a game of billiards with wooden cushes and beechwood balls.

Mr. Wells seems to have felt some compunction about the middle of his article, and interpolates a sort of half apology, which, however, tapers off into a renewed charge. He actually puts us in the witness-box and persuasively suggests that we ought to plead guilty, and have it over. This is how the paragraph runs:

I am haunted by a fear that the careless reader will think I am writing against upper-class schoolmasters. I am, it is undeniable, writing against their dullness, but it is, I hold, a dullness that is imposed upon them by the conditions under which they live. Indeed, I believe, could I put the thing directly to the profession, "Do you not yourselves feel needlessly limited and dull?" I should receive a majority of affirmative responses. We have, as a nation, a certain ideal of what a schoolmaster must be; to that he must by art or nature approximate, and there is no help for it but to alter our ideal. Nothing else of any wide value can be done until that is done.

Real objective dullness may be imposed on the schoolmaster, as is suggested in the above paragraph, by the conditions under which he does his work, but the reputation for dullness is certainly thrust upon him by the prejudices of the public. The popular impression is that the schoolmaster carries his professional attitude with him into the everyday world: that he is always teaching. He is expected to be one of Prof. Raleigh's "tiresome explanatory persons," and the public naturally finds its expectation realized. But is it true that the schoolmaster is fonder than the ordinary man of explaining things out of school? In ordinary experience I do not find that schoolmasters have any special interest in instructing me. The people whom I have discovered to be most eager to enlighten the dark places in my mind have been found mostly in railway carriages—usually during hours at which the schoolmaster has an excellent alibi. The apotheosis of the explanatory person is surely reached in the authors of letters to the editor, and these cannot be all schoolmasters. In fact internal evidence is conclusive on the point, since so many of the letters are meant to instruct schoolmasters in their business. The truth is that the pedagogic spirit is much more virulent in the amateur form than in the professional.

It is sometimes argued that the very circumstances of his life make the schoolmaster a dreary distributor of undesired knowledge. But it does not seem to strike the plain man who argues in this way that the schoolmaster may want a rest from schoolmastering, may get tired of instructing other people, and may be very glad to drop the didactic attitude as soon as he gets to a reasonable distance from his boys. It has to be admitted that a certain small percentage of schoolmasters—mostly after middle age—are unable to get rid of the professional bias even in general society. But these are pathological cases, and can be matched by the bores bred in other professions.

Another source of the dullness of schoolmasters in ordinary society is said to be the self-consciousness arising out of an undue sense of their own importance originating in the unhealthy atmosphere of the school, where they are autocrats, or at any rate superiors. A former Bishop of London maintained that, whatever else education is, it is always an interaction between an inferior mind and a superior. Common sense perceives that this statement cannot be upheld. There is no reason in the world to suppose that the teacher-mind is in any way superior to the pupil-mind. The truer view is that implied in the action of the old clergyman who always lifted his hat when he came before a class of boys, because he knew that so many of them must be potentially his superiors. The only thing we are sure of at the school stage is that the teacher-mind is usually better provided with knowledge than the pupil-mind. It is all a matter of mental content. It is natural, therefore, that the teacher should be popularly supposed to overestimate the value of knowledge, and to bore everybody by the dull process of saying all that is to be said on every subject that turns up.

With regard to the charge that in school the master acquires an undue idea of his own importance, it must be admitted that it has a certain amount of foundation. In his recent work on "Social Psychology" Mr. William Macdougall reduces our primitive instincts to seven. Of these, two are of special interest in dealing with our present subject. The first is the instinct of self-assertion, which shows itself in the presence of those who are obviously inferior to ourselves. The "dignity" of a big dog in the presence of little dogs illustrates the instinct, and even such an unheroic creature as a hen instinctively and inevitably assumes the attitude when she finds herself among her chickens. The schoolmaster cannot hope to escape what is inherent in human nature, though he is no more liable to this tendency than are other human beings. No doubt attractive pictures can be made of the awful pomp of the schoolmaster in the presence of his class. Even the modest old Moravian Bishop gives us over to the enemy when he describes the master moving among his boys as the sun among the planets. But the second primary instinct in which we are interested must be taken into account, and this to some extent at least counteracts the first. This is the instinct of self-abasement. If the master instinctively and inevitably assumes the self-assertive attitude towards his acknowledged inferiors in the schoolroom, he no less instinctively and inevitably falls into the attitude of self-abasement in the presence of those who in the ordinary world are conspicuously his superiors. I could have wished that Mr. Macdougall had hit upon a happier name, but we are not to suppose that self-abasement means anything in the way of toadying. It merely represents the natural reaction of human nature to certain persons and things. Had Charles II been a different kind of king, Dr. Busby might well have experienced the keenest self-abasement, even while he kept his hat on as a concession to the instinct of self-assertion. What is needed is that the schoolmaster should more frequently meet the king. The more the schoolmaster goes into society where he meets his superiors the less danger will there be of the self-conscious dullness that comes from the undisciplined exercise of the instinct of self-assertion. In day schools there is usually enough intercourse with outside people to maintain a fair balance between the two instincts. In boarding schools there is often enough intensity of reaction among the members of the common room to balance the variety that the day school offers. One's fellow masters do a great deal to prevent the self-assertive instinct having too much of its own way. Our colleagues usually deserve well of us in the matter of self-abasement. It is pleasant to find in this discussion of professional dullness a really strong argument in favour of the long holidays that are beginning to be grudged to us. No better counter irritant to the self-assertive instinct could be found than the custom, fortunately common among teachers, of spending their holidays abroad. But even a hydropathic, a golf links, or indeed a plain but well filled boarding house, are excellent means of producing the requisite self-abasement.

So far we have been examining our reputation for dullness, and considering means to remove the charge, but we have now

to face the serious difficulty involved in the fact that we are not only expected but required to be dull. There is no doubt but that outside of school the schoolmaster is made to feel that it is better to be dull. In writing on what are called serious subjects authors who wish to win a reputation for soundness know that it is to their interest to be dull. Anything approaching brightness of style is looked at askance by the critics. A certain limited degree of obscurity is a positive advantage. A book can hardly win the coveted epithet "profound," if the critic can readily understand it. A certain distinguished Scottish Professor of Divinity used to advise his students, when they got parishes, to preach at least twice a year a sermon that no one in the congregation could understand. A writer of the distinction of Prof. William James is regarded with suspicion because so much that he has written is easy to read, and is withal bright and interesting. I could name one or two of our younger writers on education and psychology who are suffering for not being dull enough.

This cult of the dull is especially applicable to the work of education. A degree of decorum amounting to dullness is practically required of the schoolmaster. For this there are sociological reasons. Every society maintains its equilibrium by sternly repressing eccentricities. The twin forces of imitation and convention by their interaction reinforce each other in such a way as to produce and maintain a community of thought and feeling that tends towards stability. No doubt society is always clamouring for originality; but a very little originality goes a long way in satisfying the demand. Even in the case of the genius only a very limited differentiation from type is allowed. The history of civilization teems with examples of geniuses who have exceeded the range of permissible deviation and have been in consequence thrown on the scrap heap.

There are two theories of the origin of the great man. According to the first he arises, somehow, full of native strength, strikes out a new path for himself, and by his force sets up a general imitation among the smaller men. This obviously explains nothing. The great man is a sort of miracle. He introduces an entirely new and inexplicable element in human progress. By his influence new schools of thought and new modes of action are introduced mysteriously from nowhere. The other theory maintains that at any particular period the world spirit is tending in a certain direction. All men are moving with the spirit, but at different rates. Some are moving along unconscious of their goal, others have a vague impression of whither they are tending. Of Mr. Hobhouse's three stages of development, the organic and the conscious are the two involved here. Among those who are working at the conscious stage are some who perceive more clearly than the rest the underlying meaning of the tendency under whose influence they are acting. These become the great men of the time, the leaders of thought and action. According to this theory the great man is merely the man who does supremely well what all his fellows are trying to do. There are therefore many degrees of great men, and the schoolmaster naturally finds a place for himself among the minor prophets. Society looks to him more to develop its views than to originate views of his own. He is expected to maintain the *status quo*. He is the typical conservative element in society. No doubt occasions arise in which a nation takes itself in hand and seeks to recreate itself according to a higher model, and then the schoolmaster becomes an instrument of reform. But as a rule he is expected to be on the side of established order and against revolution. In school the bias of the young is towards experiment. No doubt it has to be admitted that at the schoolboy stage there is a strong conservative element. Even the child on his mother's knee will admit of no deviation from the tale as it was originally told. But below all this there is the centrifugal tendency of the young, a tendency to kick against the pricks. At the student stage this tendency becomes very marked, but it is inherent all the while, and the schoolmaster's business is generally regarded as being that of the guardian of the traditions of the race and class to which his pupils belong. How far he has the right to deviate from these traditions will always involve controversy, sometimes tinctured with hemlock.

Whatever restrictions society may place upon the schoolmaster, it expects him to be in himself a good man, both in the moral sense of these words and in that more general sense that implies that he is a good example of his species. He must be, in Mr. Wells's telling phrase, "an authentic man." But, while it must be cordially granted that nothing that is human must be alien to the schoolmaster, it does not follow that he is so to disport himself in the presence of his pupils as to exemplify all his human traits. Juvenal's well worn line is as applicable to-day as when it was first written. We must respect the innocence of youth. There is no need to enter upon a dreary discussion of what may be permitted to an adult while injurious to a boy. Society is right in limiting the amount of his authentic manhood that the schoolmaster shall share with his class. This no more makes the schoolmaster a hypocrite than do the many reticences that ordinary civilized society imposes.

What usually underlies the complaints of the colourlessness of schoolmaster character is the fact that he is so much occupied in repressing tendencies in himself and his pupils. But inhibition must necessarily play a principal part in any process of education. Listen to the words of Prof. Lange of Copenhagen:

> The end of education is always to teach the individual to dominate, to subdue, to annihilate the impulses which are the immediate effect of his physical organization, but which are not in keeping with his social relations. Regarded from the physiological point of view, one would say that education has for its end to suppress the simple and original reflexes or to replace them by higher ones. Accordingly, from our earliest childhood, we are trained to govern our emotional reflexes in so far as these are not admissible in polite society.*

Further, inhibition need not be so negative in its aim as might at first sight appear. Often we can best cultivate a positive tendency by inhibiting its rivals. Prof. Royce's psychological scheme offers many illustrations of these positive results of manipulated inhibition. The schoolmaster might no doubt be much less dull if he let himself go more than he does at present, but the educational results would not be satisfactory.

It is difficult for schoolmasters to deal with the complaint that there is a lack of first-rate men in the profession—men who, in the sentence applied to Thomas Arnold, "might have been Prime Ministers." We cannot with modesty refute the calumny by inviting the critics to move about among the members of our profession and obey the classical command "circumspice!" Still less can we be expected not only to admit our inferiority but to set about explaining it. Is not this a case for one of our "deadly silences"?

When we come to consider the master within his classroom we find that there is real danger of dullness of the subjective kind. The master is, or ought to be, familiar with the subjects he teaches. They have lost their freshness. When a man has led a score of classes through the Gallic War and over the Pons Asinorum, he is apt to become bored by these matters. But here the newer educational ideas suggest a way of escape. A knowledge of the subjects to be taught is of course indispensable to teaching. Time was when this knowledge was considered enough for the teacher's purpose. But as the theory of education developed it was recognized that a knowledge of the pupil to be taught is quite as important as a knowledge of the subject. The incidence of the experienced teacher's interest has now passed largely from the subject to the pupils. He knows exactly the kind of mistakes a given class will make in a given exercise, and this gives him a gentle interest in verifying his averages. But no teacher can be quite sure how an individual pupil will deal with a given difficulty, and the infinite variety of human nature leaves no excuse for the schoolmaster who becomes subjectively dull in his professional work. Whether he has to be dull objectively is a different matter. For, strange though it sounds, there may be something to be said in favour of what is usually regarded as dullness in school. What if, after all, we may unblushingly accept the charge that we are collectively and individually dull? We are so accustomed to estimate a man's value by his power to stimulate his pupils, that we seldom pause to ask whether we may not have too much stimulus in school. We are apt to think that nothing of itself will come, but we must still be teaching and stimulating and inspiring. There can be little doubt that we teach too much, and that we are frequently dull because we stimulate in the wrong place. There is need of fallow times in school work, when the pupil is allowed to ruminate quietly. Such times may convey to a careless observer the idea of dullness, but it is a false idea.

* "Les Emotions." Edition Alcan, page 140.

The pupil who is recuperating after an excess of stimulus is far from being dull. Further, there is sometimes a danger that the teacher may get confused between what is dull to him and what is dull to his pupils. The teacher would no doubt be bored to death if he had to work out a long series of commonplace "examples" in arithmetic, while his average pupils may have quite a relish in the more or less mechanical getting of such arithmetical results. The study of mental fatigue in schools has made great progress of late. Many excellent generalizations have been reached, but some at least of the results have been vitiated by the failure to discriminate between fatigue and boredom. Fortunately the investigators are now fully alive to the importance of the distinction between the two states, and we are on the way to have some careful studies of the educational functions of ennui. In other words, the dullness of schoolmasters is to be studied in its reaction upon the pupils.

We may learn something, if only negatively, by an examination of one of the results of the study of mental fatigue. Calculations have been made of the fatigue-producing powers of the various school subjects, and we have lists drawn up of the various subjects in the order of their power of producing fatigue. The following list, for example, has been compiled from school tests made by means of the æsthesiometer. The figures indicate the percentage of fatigue in each case:—

Mathematics	100	Arithmetic	82
Latin	91	French	82
Greek	90	German (mother tongue)	82
Gymnastics	90	Nature Knowledge	80
History	85	Drawing	77
Geography	85	Religion	77

But Ludwig Wagner in preparing this list does not seem to have taken into account the most vital element of all—the teacher's personality. I know teachers who send away their pupils after an hour's drawing much more exhausted than they are after an hour's mathematics under other masters that I could name. Indeed, Kraepelin, a psychologist who has given a great deal of attention to this subject, goes the length of saying: "The present arrangement of school curricula makes it a necessity to have tedious teachers in whose classes the pupils may rest themselves by inattentiveness."

Another ingenious defence of dullness is to be found in the fact that the teacher's effect upon his pupils is not to reproduce his own qualities but their opposites, or, at any rate, their complements. The strong-willed teacher gives no opportunity for the exercise of the wills of his pupils, the talkative teacher produces silent pupils. May it not be that the dull teacher tends to produce brilliant pupils? Reference is made to the fact that in the biographies of great men it is very rare to find any indication of the influence of the teacher as an inspiration, and it is suggested that if there was no positive inspiration there may have been at least a vigorous reaction against the teacher's dullness. The argument carries no conviction. No doubt under dull masters clever pupils have done excellent work, and have even sharpened their wit upon the dullness of the master. But we all know the depressing power dullness has to beget dullness. Intermittent dullness that gives the prevailing stimulus time to work its full effects may be justified: consistent unbroken dullness can be nothing but a misfortune.

A more hopeful case for dullness can be made out by those teachers who are morbidly afraid of the interesting in teaching. They tell us that the master that makes everything in school interesting is weakening the moral fibre of his pupils. The world, they tell us, does not go out of its way to prepare interesting sets of circumstances for the young people when they leave school, and when they go out into the world they are naturally unfit to cope with a state of affairs so unlike what they have experienced under the interesting schoolmaster. Those who argue in this way do not openly demand a race of dull teachers, but it can hardly be denied that such a race would meet the requirements of the anti-interest theory. The fact that those who maintain the theory shrink from labelling themselves dull-by-intention seems to show that there is something wrong with it. The trouble really is that there is a prevailing confusion between the interesting on the one hand and the easy or pleasant on the other. Much of the most difficult parts of school work are full of interest. Further, it is a libel on the world to say that it is not an interesting place. Pleasant it may not be; easy, for most of us, it certainly is not. But it is interesting for all. The only person who has any right to maintain that the world is not interesting is the man who is about to commit suicide—and even in his case it may be that his action results from the fact that the world is too interesting for him. Though the world has not been specially arranged to provide easy and pleasant and soft things for our pupils when they leave school, it is so arranged as to be very interesting to them. No doubt our pupils are very apt to be interested in the wrong things, and this is the very reason why it is necessary during the school period to arrange that the pupils shall be interested in the right things. It is not desired that the pupils shall be saved trouble, but rather that they shall be made to take trouble—trouble about the right things. The distribution of this trouble between master and pupil is at the bottom of all questions of dullness in school. The teacher's success must be tested not so much by what he does as by what he makes his pupils do. Too often the teacher accepts the subjective test—how he feels after a lesson. When he has carefully prepared his lesson, has taught it with great vigour, and feels very tired after it, he is apt to feel well pleased with himself. The fatigue effect is certainly entitled to careful consideration in estimating the results of a lesson. But the ergograph and the æsthesiometer are to be applied to the pupils, not to the master. Pupils ought to be fatigued after a good lesson. Naturally we have to discriminate between fatigue and over fatigue. But, so long as the fatigue resulting from school work can be removed by the ordinary rest periods, it is not a thing to be avoided. Further, it is not to be forgotten that an interesting lesson produces more fatigue than an uninteresting one, though the latter produces more ennui. All this is not to be taken as an encouragement for lazy schoolmasters. In order that the pupils may work hard during the lesson hour, the master must work hard before it. Further, the good teacher works hard during the lesson hour in the way of stimulating his pupils; for, after all, stimulus means nothing more than an incentive to work. The good teacher works more than appears on the surface. He may talk little and not move about much, and may therefore have all the appearance of a dull dog, but he cannot be legitimately called dull. Your really dull person usually talks a great deal. He even enlivens his speech with a kind of humour; for "gentle dullness ever loves a joke." But the net result is boredom. No extraneous attractions are of avail to remove the taint of dullness, but the power to cause appropriate reactions in our pupils. Your dull master is the man who insists upon always looking at things from his own point of view, who cannot enter into the experience of his pupils. It is the dull teacher who never learns the art of letting a clever pupil be clever in his own way.

Mr. Cholmeley said there were many points in the lecture which would be valuable to teachers in the exercise of their profession, but his experience led him to disagree with the observation that part of the duty of the teacher to repress himself was due to the inherent tendency of children to be radicals. He agreed that it was important to check the habit of the teacher to go on teaching all the time. The really valuable thing was not what the teacher did, but what the pupils themselves did. It was the most conscientious teacher who was likely to go wrong in this direction, as he felt that he must be doing something for his pay. With regard to subjective dullness he could not understand any teacher finding his work dull. It was quite certain that any teacher who found himself in this position ought to be doing something else. As to objective dullness, this was partly accounted for by the fact that teachers were afraid of being found out. They could not afford to be found out, and it was exceedingly difficult for a man to be interesting when he stood for the greater part of his life with his toes over the edge of a precipice. The teacher had to deal with what might be called the lowest common denominator of the class. This had been well illustrated by Prof. Muirhead in a lecture on the teaching of religion in secondary schools, in which he analysed the stages which young persons passed through in religious thought. He showed that there were three stages so well marked that at each successive stage the former seemed almost absurd. Imagine a class of thirty boys of whom ten were in each of these stages. The problem the teacher had to consider was what could he say that would be of most use to the whole of the class, and he was bound to sacrifice a good deal of interest. The treatment of any subject was limited in this way, and this practical difficulty was not sufficiently taken into account. The lecturer's remarks as to the comparative necessity of emphasizing the subject and the pupil were exceedingly valuable, and incidentally threw light upon the fact that the teacher

must know his subject thoroughly before he began to teach it, as otherwise he was not able to take sufficient account of the pupil. One of the most valuable tendencies of modern education was the recognition by teachers of the fact that their classes consisted of a great variety of pupils, and that the real problem was to reconcile the necessities imposed upon them by this condition with the fact that their teaching was of little use unless they reached each child in particular.

Mr. Dumville said that many young teachers began their work with the idea that it was a sign of weakness to try to be interesting, and possibly Mr. Wells and others who spoke of the dullness of teachers remembered their own early experiences. He would like to see teachers think more seriously of their work out of school hours and throw off the seriousness when they entered the classroom. The question as to how far teachers should adopt a conservative attitude in dealing with boys had been raised in the newspapers lately, and he thought there were other reasons besides those indicated in some of the articles which had appeared. In a class of boys or young students there were always some of pronounced views who were backed by their parents and convinced that their parents were right, and the teacher by declaring his views at once raised a certain amount of opposition, and marked off a certain number of boys as opponents, and became a subject for attack. It was not wise for him to take up any decided position with respect to such deep questions as arose in politics and religion. The previous speaker had emphasized the fact that teachers were afraid. One thing that many of them had to fear was the visit of the Inspector. He contended that a teacher ought not to be judged on the particular lesson which he happened to be giving at any moment, but that attention should be paid to the whole scheme of his work.

The Chairman, in proposing a vote of thanks to the lecturer, emphasized the importance of keeping alive the interest of the class, and instanced some of the methods resorted to by famous schoolmasters in order to effect this purpose. The dullness of the teacher was very often due to the system under which he was compelled to work, and not to any fault of the teacher himself.

COLLEGE OF PRECEPTORS.

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH.

The following is a list of the successful candidates at the Examination held in October, 1910:—

Class I.

Price, Miss A. G.

Class II.

Harding, Miss D. J. | Thomas, H.

THE BRITISH ASSOCIATION AT SHEFFIELD.

M. BINET'S METHOD FOR MEASURING INTELLIGENCE.

By Katharine L. Johnston.

With M. Binet's help given at the Laboratory, Rue Grange aux Belles, Paris, I have applied his tests for estimating the level of intelligence to two hundred schoolgirls of Sheffield. The tests are part of a more extensive examination which has as its object the complete understanding of a child who comes before us, and if they are what their authors hope them to be, they will assist teachers who desire to determine the reasons for the lack of progress of pupils, or to gain knowledge of the intellectual calibre of a new pupil. As an example of their nature I give those employed for children of nine.

They are asked (i) to give the exact date of the day, (ii) to enumerate the days of the week, (iii) to define "fork," "table," "chair," "horse," "mother" (the definitions given are to be superior to "use" definitions), (iv) to read the following: "Burton-on-Trent, 6 January. Last night a great fire at Burton-on-Trent destroyed three houses situated in the centre of the town. Seventeen families are homeless. The losses exceed £150,000. While saving a child in its cradle a barber's assistant was seriously burned on the hands"—and after a brief interval to recall at least six facts. (v) Having before them a heap of money containing £1, 10s., 5s., 2s., 1s., 6d., 3d., 1d., ½d., and in addition three pence and seven half-pence, to enact the part of a shopkeeper, selling a small article for four halfpence. The purchaser tenders 1s. in payment, and change is demanded. Various solutions are possible, the best being the sixpence, the threepenny bit, and one penny. (vi) Being given five boxes of identical shape and appearance, but 3, 6, 9, 12, 15 grammes respectively in weight, to arrange them in order of weight; three attempts are allowed, two of which must be correct.

The investigator on this method deals with the individual, and a little preliminary talk is necessary to ensure confidence. The child's age is then ascertained, and the tests for that age given; should he accomplish all, or all but one, he is adjudged at the level of that age, and is then subjected to *all* the tests of the succeeding ages. If he accomplish five of these a year is added to his level; if ten, two years. But if the child fail in two or more of the tests appropriate to his own age, he is put through the tests of each preceding year in turn until that year is found in which he can accomplish *all* the tests or all but one.

My experience is that one of the greater hindrances to exactitude lies in the investigator; it is impossible to be certain that one has preserved identical tones of voice and expression of face throughout the sittings, and with a subject so susceptible to suggestion as a child the doubt will creep in that the result has thus been vitiated. Then there is the difficulty of estimating the results. Thus one of the tests requires the children to make a sentence containing the words "London," "river," "fortune." If I allow the construction "London river" M— C— (twelve years) is at the twelve level; if I do not allow it she is only at the level of ten years, and since she cannot do five tests superior to that level she must be adjudged backward.

I have found that it is the exception rather than the rule for a child to be able to satisfy the tests for her own age, *e.g.*:—of 4 children of six years, 2 have to go back; of 41 of seven years, 26 have to go back, 9 can do the tests for eight; of 22 of eight years, 15 have to go back, 1 can do the test for nine; of 25 of nine years, 20 have to go back, 5 can do the test for ten; of 37 of ten years, 23 have to go back, 2 can do the tests for twelve; of 23 of eleven years, 20 do the tests for ten, 3 can do the tests for twelve; of 22 of twelve years, 16 have to go back, 1 can do the tests for fifteen; of 20 of thirteen years, 16 have to go back, 4 can do the tests for fifteen; of 3 of fourteen years, 2 have to go back, 1 does the tests for fifteen; of 3 of fifteen years and over, 2 have to go back, 1 does the tests for fifteen.

The provision for adding one year for five tests superior to the level reached, or two years for ten, mitigates the severity of this judgment. Thus, of the fifteen children eight years old who had to go back, excluding one in whose case the tests were not completed, only three in the final reckoning are to be adjudged backwards.

I have found cases in which girls could satisfy the tests of a superior level, but were unable to satisfy the tests of their own age or of the age immediately preceding it. M. Binet was prepared for such cases, and the child who presents this characteristic is estimated as of the intellectual level of the year at which she fulfils the required number of tests.

CONFÉRENCES FRANÇAISES.

Société Nationale des Professeurs de Français.

CHOSES ET ETRES: CREATION OU EVOLUTION?

Par M. Boissot.

La Conférence qu'il nous a été donné d'entendre le samedi 24 septembre dernier, au College of Preceptors, avait pour but de montrer que l'évolution paléontologique, créée de toute pièce par certains géologues, ne présentait pas de garanties scientifiques suffisantes pour qu'on puisse l'admettre comme l'expression d'une vérité aussi incontestable qu'indiscutable.

M. Boissot, dès le début de son étude, a signalé les deux écoles opposées: celle qui croit purement et simplement à une évolution animale lente et progressive, et celle qui admet une sorte de transformisme limité, dû à des causes diverses qui se sont manifestées pendant un espace de temps aussi étendu que difficile à préciser.

Tout en faisant des réserves sur le premier chapitre de la Genèse, le conférencier a tenu à mettre en évidence les quelques grandes vérités géologiques qui y sont signalées et dont la plupart sont admises, dans leurs grandes lignes, par les savants. Entre autres choses, il nous dit que le mot "jour" ne doit pas être pris au pied de la lettre, mais dans e sens d' "époque."

S'appuyant sur l'autorité de Sir William Ramsay, il établit que la terre était primitivement à l'état gazeux, qu'une force, d'une énergie incalculable, a converti ces gaz en une sorte d'agrégat incandescent qui devait donner à la terre l'aspect d'une nébuleuse. De transformations en transformations notre planète serait passée de l'état gazeux à l'état *pâteux*, et de celui-ci à l'état solide. Plus tard, elle fut entièrement recouverte par les eaux qui tenaient en dissolution de nombreux oxydes, principalement de potasse et de soude. L'océan n'avait pas la limpidité que nous lui connaissons, et cette constatation fait supposer que les terrains de sédiment ont dû se former plus rapidement qu'on ne le pense et n'ont pas embrassé une période de plusieurs centaines de mille d'années ainsi que quelques géologues l'affirment un peu à la légère.

L'accumulation des gaz, produits par la matière ignée, difficilement maintenus par la faible écorce terrestre et par les eaux, cherchaient une issue pour se dégager. D'épouvantables trépidations durent agiter la terre d'un pôle à l'autre et la fracturer en maints endroits. Des abîmes d'une profondeur et d'une étendue très grandes furent le résultat de ces secousses sismiques.

L'évolution géologique forma les océans et donna naissance aux chaînes de montagnes. En France, d'après Elie de Beaumont, ce fut le massif central qui apparut le premier. Beaucoup plus tard les plaines de France se montrèrent ainsi que celles de l'Angleterre. A ce moment-là, paraît-il, la France et l'Angleterre étaient soudées ensemble. La Tamise, d'après le même savant, devait unir ses eaux à celles du Rhin, non comme affluent de ce dernier, mais par un même delta. La formation du sol anglais fut, dit-on, beaucoup plus tourmentée qu'ailleurs. Le pays qui nous donne l'hospitalité eut sa surface remaniée bien des fois et perdit de son étendue ainsi que l'indique la forêt préhistorique de Cromer, actuellement enfouie sous les eaux. Par son activité incessante l'océan rongeait les côtes à peine formées, séparait des contrées, créait des îles, dentelait les continents.

Il nous est ensuite démontré que la lumière était, primitivement, indépendante du soleil, et que ce n'est qu'à une époque indéterminée que cet astre est devenu ce qu'il est. Une courte description de l'univers est donnée par le conférencier afin de démontrer l'infinie petitesse du plus grand des hommes en présence de l'infinie grandeur de Celui qui a créé les mondes. Il saisit l'occasion pour affirmer qu'une force aveugle, brutale et inintelligente n'aurait pu constituer l'univers et lui donner des lois aussi parfaites que celles qui le régissent.

Il nous présente ensuite la vie faisant son apparition sous sa forme la plus rudimentaire : mousses, plantes herbacées, grands végétaux, forêts en partie constituées par des fougères et des conifères. . . .

Au fur et à mesure que les données climatériques se modifiaient, des races nouvelles remplaçaient celles qui venaient de disparaître. Dans le terrain de la molasse figure le mastodonte pourvu de quatre défenses. En Amérique, les ossements des éléphants, des rhinocéros se trouvent avec des débris du précédent animal et surtout avec ceux du massif mégathérium qui se rattache un peu au genre Csadype de l'ordre des édentés.

Revenant en arrière, le conférencier décrit la formation du terrain houillier si important en Angleterre, aux Etats-Unis, en Allemagne, en Belgique ainsi que dans plusieurs autres contrées. Il cite l'opinion des savants à ce sujet et montre qu'ils sont loin d'être d'accord entre eux.

A la suite des périodes géologiques précédentes, un cataclysme inouï vint à se produire : les eaux recouvrirent toute la partie septentrionale de l'Europe. Bien des siècles plus tard le même phénomène se manifesta dans le sud de la même contrée. Durant la période troublée du diluvium de nombreuses espèces animales furent détruites. . . .

L'époque, dite glaciaire, qui se produisit dans la suite, ne fut pas moins funeste à la faune que la précédente. Ce fut à ce moment, pense-t-on, que la mer saharienne vint à disparaître, ce qui donna naissance au désert de ce nom.

Dans la seconde partie de sa conférence, M. Boissot cherche à montrer que les diverses espèces animales qui se sont succédé sur la terre ne sauraient être considérées comme le résultat d'une évolution naturaliste, telle que la conçoivent beaucoup de personnes aussi sincères que distinguées. . . .

La ressemblance, plus apparente que réelle, qui existe entre l'homme et le singe, fait supposer, dit M. Boissot, que nous sommes apparentés à ce quadrumane. Mais, si l'un veut se rendre compte de la différence qui existe entre ces deux produits zoologiques, on n'a qu'à se rendre au musée d'histoire naturelle de cette ville. On y constatera bien vite que cette différence est très accentuée dans le développement des membres, de la poitrine, du crâne, dans la forme et l'inclinaison du sacrum, la disposition des vertèbres cervicales, la courbe de la colonne vertébrale, les sinuosités des circonvolutions du cerveau, etc. . . .

A la fin de sa conférence, M. Boissot cite l'opinion des sommités scientifiques suivantes : celle de Darwin qui avoue ne pas pouvoir prouver qu'une seule espèce animale n'ait pas été créée ; celle de Lord Kelvin qui admet la Création ; et, enfin, celle de Pasteur qui a démontré qu'il n'y a pas de générations spontanées.

REVIEWS.

History in German Girls' Schools.

The Teaching of History in Girls' Schools in North and Central Germany. By Eva Dodge, M.A. (1s. 6d. Manchester University Press).

Miss Dodge went to Germany as a Gilchrist Student to inquire into the methods of teaching history in schools for girls, and this volume contains a report embodying the results of her investigations. It deserves to be carefully and widely read, "for, if there is much in German educational methods that radical differences of national character will prevent us from accepting, . . . there is yet much more which will be as congenial to the English as to the German temperament."

The Germans believe in education, and the guardians of their educational system are ever sensitive to new ideas for general administration or the schoolroom. A "conservative progressiveness" animates the German educationist—"the *best* is good enough for our children"; a "progressiveness" that keeps in view the interests of the State and of the individual. Indeed, these interests are deemed reciprocal, for there is a pervading consciousness that the State and its administration are bound to fail without noble aspiration on the part of its citizens, and that such aspiration must fail in its endeavour without a sound and stable "framework of law." From this attitude of mind the aim of German history teaching may be inferred. Broadly speaking, it is the cultivation of good citizenship, reverence and love for the State, and a right apprehension of present-day requirements. Good citizenship can best be cultivated by careful study of the successes and failures of Germany's great men; and the right study of history will teach the civic duty of the present day.

The educational authority for each State issues a *Lehrplan* ("Suggestions" and Curriculum) for the guidance of the teacher, with the object apparently "of leaving him in no doubt as to his possibilities; and, lest his mind should not be broad enough to embrace on its own initiative a comprehensive aim combined with right insight into means, both the one and the other are expressed for him in black and white, idealistically and outspokenly." This, however, must not be construed to mean cramping restriction, for no fetters of method hamper the teacher. Wide scope is left for the expression of his personality. Indeed, *Der Lehrer ist die Methode* in Germany as in England, but in the Fatherland the teacher of history seems to intrude more of himself (and even of his private opinions) into his lessons.

In the elementary or lower schools, pictures—notably the excellent Lehmann series—are much used, either as a starting-point for the lesson or to supplement the vivid narrations of the teacher. Girls are taught social history principally, the military details being reserved for the boys. There is one history book for girls, another for boys; one for Lutherans and one for Catholics. The majority of the teachers, both in the lower and higher schools, are men, some of whom are responsible for the "over-emotional" tendency of the teaching in some girls' schools—a condition of affairs difficult to explain apart from the fact that German educational schemes tend to foster in girls the peculiarly feminine qualities to the neglect of the more robust. "This constant appeal to the emotional side of a girl's nature results in an over-strain of feeling, which shows itself in a luxury of *Schwärmerei* and leads the girl away from the practical interests of life"; so says Fräulein Helene Lange in protest against this tendency. The reformers, however, are demanding that in the higher schools the majority of the teachers shall be women.

In the higher schools, "the atmosphere is one of broad culture, literary and æsthetic, far surpassing that within the reach of the average English schoolgirl." The lecture method predominates in the history work of these schools, and consequently not much "self-activity" is evident during the actual lesson, though this is obtained independently by the study of original sources. The courses are very comprehensive, including, in addition to German and European History, Mythology, Greek and Roman History, and the History of Art. In how many English schools is the last subject even touched upon in the history scheme? Although "the practical and ideal grounds for the correlation of history with the other humanistic subjects are recognized in Germany, yet, owing to the practical difficulties, little purposed correlation right through the *Lehrplan*" has been attempted.

Miss Dodge concludes with a paragraph of much insight:

Let us aim at giving the children wholes—broken arcs, it is true, they are bound to be, yet with some conception of the perfect round. Not mere periods of history, but a whole of history; not mere countries and continents, but a whole of geography. *The* whole is impossible. *A* whole is necessary to the mind—so long as we do not fall into the fatal error of supposing it to be *the* whole, fixed, final, and perfect.

We recommend teachers to read this suggestive and stimulating work. It is a valuable contribution to the somewhat meagre stock of literature in English on the subject of history teaching. It should find a place in every library for student teachers.

Conic Sections.

A Course of Plane Geometry for Advanced Students, Part II. By Clement V. Durell, M.A. (7s. 6d. net. Macmillan.)

The complete work constitutes a treatise on the geometry of the straight line, the circle, and the conic sections; the present volume, however, is devoted entirely to an investigation of the last-named group of curves and to an explanation of the various principles on which the author's discussion of the subject depends. The treatment is interesting, and provides material for an excellent course of study. That the work is suitable for the advanced student only will soon become evident even from a casual consideration of its pages. Those alone who have thoroughly assimilated the portions of mathematics that lead up to the contents of the new text-book, and who have therefore acquired the power of recalling readily, and at will, the salient facts embraced by their earlier work, can hope to derive full benefit from the present treatise. Perhaps it would be unfair to say that the language in any given demonstration is unduly condensed; yet a sense of strain often asserts itself: many of the arguments call for a quantity of filling in, and for the reading to be satisfactory this *must* be supplied by the student, his mind ever on the alert to furnish the necessary details. Further, a large number of the propositions are merely enunciated, the proofs of them being left entirely to the student. The principle of continuity and the part played by the "imaginaries" through whose instrumentality the mathematician is enabled to interpret universally the results of analysis, are discussed in a manner which shows the writer to have made a very close study of his subject. The important bearing of analysis on the successful conduct of geometrical research receives due recognition. After an investigation in some detail of both orthogonal and conical projection, the author builds up, on their fundamental principles as a basis, the theory of conics and their leading properties. The method adopted owes its selection to the belief that it is perhaps more fertile in the suggestion of new ideas and hence more useful as a means of widening the field of view of the reader, than a study of the geometry of conics based on the focus-directrix definition and carried on by methods essentially Euclidean. The order of the development of the subject in the present volume has followed closely the course of history. The writer has endeavoured to trace his material to its source, and the gathering up of the threads of history, which have been collected and which are here presented to the reader in the form of observations preliminary to the discussion of fresh facts, creates one of the most attractive features of the book and infuses life and charm into its pages. The theory of reciprocation, and the principles of homography and involution occupy some of the later chapters of the text-book, as also their applications to the theory of the conic. As a result of his experience in the art of teaching, the author has taken the greatest pains to provide a very large collection of problems and exercises not with the idea that it is necessary or desirable for the individual student to solve all of them independently, but because they give exceptional opportunities to teachers to include in class instruction the valuable training secured by the rapid working on the blackboard of simple riders, the lines of proof of which have emanated as far as possible from the suggestions of the students themselves.

Dorchester purposes to do special honour to Mr. Thomas Hardy, her native novelist. This month he is to receive the honorary freedom of the borough.

Mr. Asquith delivered his Rectorial Address at the University of Aberdeen on October 25.

CHRISTMAS BOOKS.—I.

Romance of History.

On Foreign Service, by Staff-Surgeon T. T. Jeans, R.N. (6s., Blackie), describes a revolution in a South American Republic (Santa Cruz) and the action of two armoured cruisers in the protection of British interests. The course of the story involves a description of life aboard a modern man-of-war, and enables the author to illustrate the controlling influence that the command of the sea exercises on the issue of land operations. There are two brothers, as like as two peas, on opposite sides, which leads to complications; the rivalries of the Mids on the two British vessels are sufficiently piquant; and there is fighting enough to satisfy a reasonable appetite. Dr. Jeans has established himself in the front rank of naval writers for boys. Eight illustrations by Wm. Rainey, R.I.

Indian and Scout, by Captain Brereton (5s., Blackie), is a tale of the Gold Rush to California half a century ago. The hero's father had been more or less successful at the diggings, but was murdered by his partner; and a few years later Jack Kingsley himself, worried by a quarrelsome stepfather and urged by further reasons, set out for the mines. Misfortune brings him under the notice of justice, but he escapes and seeks security from arrest, as well as riches, in California. His adventures on the way there are varied and stirring: there is fighting with the Redskins and tussles with white brigands. In the leader of a band of gold thieves he discovers a man whose evidence can clear him of the charge of burglary hanging over him—the real burglar—the murderer of his father. The story goes briskly, maintaining the interest to the end. Six illustrations by Cyrus Cuneo.

A Middy of the Slave Squadron, by Harry Collingwood (5s., Blackie), is a story narrating the adventures of Dick Fortescue, senior midshipman of the British man of war "Psyche," a unit of the somewhat scanty Slave Squadron stationed by Great Britain on the West African coast in 1822 for the suppression of the infamous slave trade. Dick finds himself in and out of many a tight corner in hot sea chases, but eventually he falls into the hands of a villainous slave trader, who puts him ashore among savages. His experiences among the savages and his escape from them form the subjects of some very lively episodes. Of course, the trader that caused Dick's troubles and wanderings is at last brought to book. The story is a strong example of the author's skill and vigour, and will be read with unflagging interest. Six illustrations by W. Rainey, R.I.

The Spy, by Captain Charles Gilson (6s., Henry Frowde and Hodder & Stoughton), is a tale of the Peninsular War, said to be founded upon the personal memoirs of a Hampshire baronet, supplemented by the regimental records of the Forty-fifth, and by Robert O'Shee, master mariner of Kinsale, who is an important personage in "The Lost Island," as Dr. Terence O'Shee is here. On the Reading road, Sir Jeffery has a brush with a man that turns out to be a French spy, who escapes, but leaves important papers in his hands. The story takes us through the battle of Rorica and Talavera, and the investment and storming of Badajoz. Probably the spy turns up again and other knaves intervene, and there is a lady in the game, so that private affairs get mixed up with the public events. A stirring and interesting story. Eight illustrations in colour by Cyrus Cuneo, and a map of Badajoz.

Two Dover Boys, by Gertrude Hollis (2s. 6d., Blackie), is a story of the reign of King Henry the Eighth. Two boys of Dover are placed by their fathers on board a German trading vessel under the command of Captain Grobbendonck, the maternal uncle of the youngsters, whose son is also of the ship's company. Grobbendonck is captured by a lieutenant of Barbarossa, a celebrated corsair, who sells the boys to a Berber slave-dealer. They pass several months in captivity, till the Emperor Charles V captured Tunis and expelled the pirates. Between the hoard of the slave-dealer and the grateful gifts of Hadji Hamonda, an African merchant whose life they saved earlier in their voyage, they return richer than they set out. The story is well told, and it moves forward with vigour and ever fresh interest. Five illustrations by W. R. S. Stott.

Brave Sidney Somers, by F. W. Holmes (2s. 6d., Blackie), describes the voyage of the "Eastern Adventurer," a ship of about 120 tons burden, from the Thames to the Far East in the spacious times of Elizabeth. Sidney's father has died, leaving the family estates greatly encumbered, and a loan from a neighbouring knight, of churlish disposition, must be repaid within three years on pain of forfeiture. A brother of the knight, who had been promised part of the forfeited estates if he would settle down respectably—for there seemed no doubt that they would be forfeited—sailed in the same ship with Sidney expressly to thwart his efforts. The story is worked out in interesting episodes; and perhaps the knight's brother, for all his energy in mutinies and plots, met with a very different fate from what he anticipated. Five illustrations by Victor Prout.

Jenkyn Clyffe, Bedesman (2s. 6d., S.P.C.K.), by Gertrude Hollis, is marked by knowledge of the military and social conditions of the fourteenth and fifteenth centuries, and the lore is woven artistically into the texture of the story. Jenkyn Cliffe is the senior bedesman of the

dozen lodged in Archbishop Chicheley's hospital at Higham Ferrers in Northamptonshire, and he fights his battles over again for the amusement and instruction of Paul Langley, a youth of fourteen laid up there with a broken leg. Paul, the son of a Lancastrian knight, was on his way to London to become a "bele-baby" in the household of the Earl of Somerset—that is to say, to be trained in duties of page and squire according to the usual routine of Middle Age chivalry. The date is 1440. Jenkyn goes back a generation, tells of many adventures, including the Battle of Agincourt and the Siege of Rouen, deeds of arms and of archery, &c. The story is charmingly told and thoroughly interesting. Three illustrations in colour by Harold Piffard.

Hawkwood the Brave, by William Beck (3s. 6d., Blackie), is a stirring tale of medieval Italy. Sir John Hawkwood, the finest English strategist of the Hundred Years' War, well deserves the wider popularity that this capital story will secure for him. Mr. Beck sets forth the exploits of the White Company under Sir John's leadership in Italy, and particularly the adventurous career of his young squire, Neville Manning, who joins him after having avenged the death of his father and the sack of his ancestral castle of Chantennay in Poitou. His daring achievements form some of the most brilliant episodes of the narrative; and the events that led to the disbandment of the White Company are vividly described. Six illustrations by W. R. S. Stott.

Once Bitten Twice Shy, by Fred Whishaw (2s. 6d., Nelson), is a tale of the time of Peter the Great, and the scene is laid at Archangel. An English trader there is opening up commercial relations with England, and the Tsar visits the port. Garth Ingram, the son of an English trading captain, while hunting in the neighbourhood, saves the life of the Tsar from a wolf-pack, and the free and easy manners of Peter lead to many curious incidents. A Boyar, who has taken a fancy to the English trader's daughter, is appointed Superintendent of Commerce at Archangel; and, as he had incidentally suffered disgrace in conflict with Garth, he is not any more reconciled to him as another candidate for the affections of Marjorie. The Tsar himself perhaps makes a third interested party. The complications are interesting and stirring. Two illustrations.

Romance of Science.

No fewer than four of the new additions to "The Library of Romance," a most attractive and instructive series published by Messrs. Seeley & Co., find their subjects in the realm of science. *The Romance of Modern Astronomy,* by Hector Macpherson, Junior (5s., Seeley), describes in simple language, without sacrifice of scientific exactness, the wonders of the heavens. After a preliminary survey of the Earth and its vicinity, Mr. Macpherson passes to the Sun and its family of planets, with the comets and meteoric swarms; he next considers the phenomena that arise from the movements of the various planets and the inclination of their orbits round the Sun (eclipses and transits); he then astounds the reader with the facts and speculations relative to the vast universe outside the solar system, and narrates opinions of astronomers as to the method of the evolution and development of the universe; and for the rest treats of the tides, light and its mysteries, telescopes and observatories, practical ways of studying the stars, and the general story of the romance of discovery. Truly, "the romance of astronomy is more romantic than any romance, more fascinating than any story." A capable and charming volume, with thirty-nine illustrations and diagrams.

To Mars via the Moon is an astronomical story by Mark Wicks (5s., Seeley), intended to satisfy the interest in Mars and the Moon that he finds to be particularly evinced by popular audiences. Mr. Wicks has endeavoured "to convey by means of natural incidents and conversations between the characters portrayed the most recent and reliable scientific information respecting the Moon and Mars, stating it in an interesting form and in concise, clear, and understandable language." And undoubtedly he has succeeded in his object. The volume is intensely interesting and quite lucid. We observe that Mr. Wicks has convinced himself "that the weight of evidence is in favour of Prof. Lowell's conceptions, as being not only the most reasonable but the most scientific, and that they fit the observed facts with a completeness attaching to no other theory." However, that is a detail. There are sixteen plates and maps.

Engineering of To-Day, by Thomas W. Corbin (5s., Seeley), offers a popular account of the present state of the science, with many interesting examples, described in non-technical language. Engineering is so closely associated with the concerns of daily life that Mr. Corbin has no difficulty in finding topics that are typical of the problems engaging the engineer and at the same time highly interesting to the general reader. There is the steam-engine, the gas-engine, applications of water-power, the engineer's materials (iron, steel, &c.) and tools, bridges, ships, big guns, railways, gas, electric lighting and heating, &c., with a special chapter on the conquest of the air. "The most serious danger to the aeronaut," we are told, "is the failure of the actual machine itself." The volume is of absorbing interest. There are thirty-nine illustrations and diagrams.

The Romance of the Ship, by E. Keble Chatterton (5s., Seeley), "is the fruit of a good many years of historical research and of

(*Continued on page* 456.)

THE CURE AND PREVENTION OF SORE THROAT.

REMARKABLE LETTER FROM A SANITARY INSPECTOR.
STAMPING OUT DIPHTHERIA.

Just as Small-pox has been practically banished from the land by modern hygiene and preventive treatment, so Diphtheria and other deadly scourges are now, year by year, lessening their virulence.

The action of the Local Government Board, in supplying the local authorities with free bacteria antitoxin for use of the poor, is a further important step towards a permanent stamping out of the disease.

A no less important preventive measure is that to which attention is called in the following letter from Mr. Rowland Herring, A.R.San.I., of High Wycombe:—

"I know of no other preparation so effectual in preventing infectious disease as 'Formamint.'

"During an outbreak of Diphtheria, I have frequently given away Formamint to those who have been in contact with the disease, and no other cases have been removed to Hospital from the same household.

"As a Sanitary Inspector, I recommend all who have to come in contact with infection to take Formamint."

This letter cannot fail to convince everyone as to Formamint's power of preventing Diphtheria, Scarlet Fever, Measles, Mumps, Tonsillitis, &c. But if any further testimony were needed, there is ample forthcoming. Before quoting this, however, it may be as well to explain that the whole virtue of Formamint lies in the fact that it destroys, in the mouth and throat, the germ growths which are the cause of infectious diseases.

Formerly no effectual method existed of rendering the mouth cavity thoroughly antiseptic, because the germs were able to find hiding-places in those parts of the throat which lie beyond the reach of gargles, sprays, &c. The germicidal powers of Formamint have no such limitations, but penetrate everywhere, and thus effect practically complete sterilization.

MORE REMARKABLE TESTIMONY.

A few years ago, Prof. Seifert, the famous German scientist, subjected a culture of virulent Diphtheria germs to the action of Formamint, and found that *the whole of these were destroyed within ten minutes.*

Such laboratory proof is confirmed by testimonials from many thousands of doctors.

To take only one instance, the Chief Medical Officer of an Infectious Diseases Hospital writes in the *General Practitioner* for July 31, 1909:—"Since adopting Formamint as a preventive, I have had 17 cases of Diphtheria reported. There were many contacts in connexion with these cases, who were all given Formamint, and not a single case has occurred amongst them. . . . I commend this line of preventive treatment with the utmost confidence."

Again, a Medical Officer of Health writes in the *Practitioner* for December, 1907:—"I have never had a sore throat myself since I began to use Formamint tablets, although I suffered periodically before, and I always recommend their use to nurses."

The significance of this statement will be understood when it is explained that Sore Throat is the first symptom of many infectious diseases. Therefore to take Formamint at once is to ensure a rapid cure of the Sore Throat and safe protection against such risks.

Bearing in mind the suffering which infectious diseases cause, it is hardly conceivable that any one who understands how easily these can be prevented, will in future neglect the precaution of always keeping Formamint at hand in readiness for sudden epidemics.

A FREE TRIAL.

Wulfing's Formamint is sold by all chemists, price 1s. 11d. Get a bottle to-day, but be sure it is Wulfing's, as its great success has produced many worthless substitutes. On receipt of a post card, mentioning *The Educational Times,* Messrs. A. Wulfing & Co., 12 Chenies Street, London, W.C., will send a free sample and an interesting booklet. [Advt.

personal practical experience due to a natural love of the sea and enthusiasm for . . . one of the most fascinating studies in the whole range of knowledge." Of course, it is only a selection of materials that the author is able to put into a small volume devoid of puzzling technicalities; but the story is ample and clear as far as it goes, and very likely it will stimulate young readers to ask for more. Mr. Chatterton cannot tell us who was the first sailor, but he describes the early ships of the Nile, of the Mediterranean, and of Northern Europe; the development of the ship in the Middle Ages and onwards; the advent of steam and of steamships; the evolution of the modern man-of-war and of the modern ocean liner; with chapters on the mercantile marine, yachting, fishing fleets, life-boats, and lighthouses, &c. A fascinating and instructive volume, with thirty-three illustrations.

Romance of Adventure.

A Knight Errant and his Doughty Deeds sets forth the story of Amadis of Gaul, edited by Norman J. Davidson (5s., Seeley). Mr. Davidson follows pretty closely Southey's translation of the famous romance of chivalry, confining himself to "the brilliant and romantic story of Amadis himself," and omitting the adventures of other knights that have little connexion with the main plot. Southey considered the Amadis the best of all the romances of chivalry, and Mr. Davidson has chosen the best of it. There is no lack of brisk movement, of shrewd blows, of dwarfs and giants, castles and enchanters, knights and damsels. It is a delightful book for young imaginations. Eight illustrations in colour by H. M. Brock, R.I.

Heroes of the Elizabethan Age, containing "stirring records of the intrepid bravery and boundless resource of the men of Queen Elizabeth's reign," is a new volume by Edward Gilliat, M.A. Oxon., in "The Library of Romance" (5s., Seeley). The heroes are Sir John Hawkins, George Clifford (Earl of Cumberland), Frobisher, Gilbert, Howard of Effingham, Davis, Drake, Sir Richard Hawkins, Sidney, Raleigh, Captain John Smith, and Henry Hudson; and every boy that has met Mr. Gilliat before will be delighted to meet him again. "Many of these heroes were rude, rough men, if compared with our modern standard of conduct; but they were inspired by hopes and ambitions as high and as noble as any that have fired later heroes. . . . They may have a lesson for us who live, so we believe, in times of greater ease, refinement, and security." Maybe; but the story is the thing, and Mr. Gilliat tells it with verve from first to last. Sixteen illustrations.

The Lost Island, by Captain Charles Gilson (3s. 6d., Henry Frowde and Hodder & Stoughton), is "a strange tale of the Far East, founded upon the unconnected narratives of Robert O'Shee, of Kinsale, Master Mariner." The lost island lay somewhere in mid-Pacific, the refuge of a Mongolian priest, Tuan, who had wounded to death and robbed an English adventurer in Northern China, carrying off "the Casket of Heaven" with the greatest sapphire of the world, "Gantama's Eye," which the Englishman had received from the head priest of a monastery for translating an important manuscript. So a great-grandson of the adventurous Englishman sets out a hundred years later with the said O'Shee to find the island and the sapphire. There is plenty of adventure and of Irish humour. The story appeared a few years ago in serial form in the *Captain.* Six illustrations in colour by Cyrus Cuneo.

The Great Aeroplane, by Captain Brereton (6s., Blackie), is indeed "a thrilling tale of adventure." The "Essex Ghost"—so called from the constant appearance of the monster in the region of Essex, and its swift ghost-like flight and its mysterious disappearance—is the type of a perfect flying vessel. The inventor—an Englishman, of course—experiences difficulty in protecting it from evil-disposed persons intent on wrecking it; but he receives timely warning and aid from three young fellows—another Englishman, a Canadian, and an Australian (again all British)—and sails off with them to Newfoundland at 100 miles an hour, with better luck than Mr. Wellman. There is a great scene over the Niagara rapids, and some trouble at the first breakdown of the ship on a barren Mongolian plain. Eventually to Africa, "the home of mystery," to rescue a brother of the inventor's — though the route seems rather roundabout. There is plenty of opportunity for each of the party to distinguish himself in the strange episodes that befall. At last, of course, back to England. Captain Brereton has excelled himself. Eight illustrations by Edward S. Hodgson.

The Adventures of Dick Trevanion, by Herbert Strang (6s., Henry Frowde and Hodder & Stoughton), tells a story of eighteen hundred and four—a story of smuggling complicated with misfortunes of the hero's father, which are brought to a climax through the machinations of a rogue of a cousin. The dramatic elements of the situation are worked out with great vigour and effect, and no doubt there is found a way to repair the dilapidation of the Towers of Trevanion. A capital book for boys, full of matter and alive with interest. Eight illustrations by W. Rainey, R.I.

Adventures among the Red Indians, by H. W. G. Hyrst (5s., Seeley), recounts romantic incidents and perils amongst the Indians of North and South America. This is the fifth time (if we mistake not) that Mr. Hyrst has figured in "The Library of Adventure," so that the intelligent youth need be told no more about this volume. There is, however, much historical and sociological interest in the work, as well as adventure. Though the days of persecution and revolt have now gone by, still the red man continues to dwindle, and is likely before long to become as rare as buffalo and bison. Mr. Hyrst tells of all sorts and conditions of Indians from Canada to Terra del Fuego, and from Nova Scotia and Uruguay to California and Peru. The volume is of absorbing interest throughout, and it is attractively written. Sixteen illustrations.

The Moon God's Secret, by Robert M. Macdonald, F.R.S.G.S. (5s., Fisher Unwin), is a stirring tale of the Tropical Pacific. The centre of interest is "a wonderful treasure" supposed to be hidden somewhere among the Caroline Islands, "a set of idols made of gold and osmiridium, left in safe keeping by a strange people who inhabited some of the Pacific Islands before Europe dreamed there was such an ocean"—the Okapites being the people, and the guardian of the treasure "the great Moon God Urar." There is plenty of excitement in the expedition and in the realization of its object. The narrative, if somewhat rough, is vigorous and direct. Thirteen illustrations by Arch. Webb.

The Insurgent Trail, a story of the Balkans, by Tom Bevan (3s. 6d., Nelson), is a brisk tale of adventure, with a love episode twisted through it. "M'sieu must not forget that there are far more murders in Macedonia in a day than in England during a whole year." There is a William Tell shooting display, battles with the Turks, streaks of bad luck and desperate resolves, and perils in a wild enterprise. The movement is lively and continuous, so that the interest is well maintained; and the tone is fresh and healthy. Four illustrations.

Overdue, by Harry Collingwood (3s. 6d., Blackie), is "the strange story of a missing ship"—"a yarn of the days when the clipper sailing ship was at the zenith of her glory and renown." A young midshipman apprentice, by the luck of circumstances, finds himself in charge of the "Mercury" in mid-ocean, and presently, under pressure of crew and passengers, is driven to acquiesce in the demand that they should sail to the Pacific in quest of a suitable island whereon to settle and to establish a socialistic community. Here, in the search, is scope for adventures; and there are more exciting events before the "Mercury," long given up for lost, arrives in Sydney harbour. What became of the island socialists we will not reveal. The story is full of stirring interest, and is well written. Six illustrations by W. H. Holloway.

Blown away from the Land, by David Ker (1s. 6d., Blackie), recounts an exciting adventure in the Mediterranean. Two young lads, cousins, take a holiday trip to Tunis with their uncle, a famous explorer, and after various other adventures, they are blown out to sea in an open boat and cast upon an uninhabited island. They discover traces of the presence of a man, and find reasons to suspect that he is an escaped convict from an Italian penal settlement. No doubt their suspicions are resolved, and the party rescued, and everything adjusted satisfactorily. But there are many interesting developments in the meantime. Three illustrations by Paul Hardy.

The Deputy Boss, by Bessie Marchant (1s. 6d., S.P.C.K.), is a very exciting tale of British Honduras. Felix Ansey, called Boss by the Indians of his mahogany works, a turbulent lot of Twakas and Smoos, was badly mauled by a jaguar, and Greg Outram, son of a neighbour, went to manage things in his absence. Waka Jim, the head man, was determined to make himself Boss. And so the machinations of this villain lead to bustling adventures by land and by river. The story is skilfully put together and plainly written, and the excitement is keen from start to finish. Three illustrations by Oscar Wilson.

History and Literature.

Men of Mark in the History of Western Europe, by Richard Wilson (6s. net, Nelson), is a handsome volume of biographical sketches intended "to serve as a kind of gossiping introduction to European history." Indeed, "there is not a great deal of sober history in them," but (Mr. Wilson thinks) "the tales and legends here set down will readily connect with sober history." We like history and we like fiction, but we do not like a mixture of the two, unless it be expressly labelled fiction: we are suspicious of that "ready connexion." The volume must be read with lively attention to Mr. Wilson's explanation. It ranges from the last Roman triumph early in the fifth century down to Garibaldi. The sketches are capably written, and there are thirty-two coloured plates, most of them of high excellence.

The Gateway to Tennyson (5s. net, Nelson) contains "tales and extracts from the poet's works." The particulars of the tales are drawn either directly from the poems of Tennyson or from the sources whence he took his materials—Malory's "Morte d'Arthur," and the Welsh "Mabinogion." The stories are simply written and effectively presented. Mrs. Andrew Lang furnishes a sympathetic biographical introduction. There are sixteen coloured illustrations from drawings by Norman Little and numerous marginal pictures. A delightful volume to introduce young people to the poems of Tennyson.

Russia, by L. Edna Walter, B.Sc., A.C.G.I. (1s. 6d.), belongs to

Messrs. A. & C. Black's attractive and instructive series of "Peeps at Many Lands and Cities." The distinctive aspects of Russian life are simply and efficiently described; and there are twelve full-page illustrations in colour by F. de Haenen and other capable artists.

AMONG THE FAIRIES.

The Lilac Fairy Book, edited by Andrew Lang (6s., Longmans), is a fresh addition to the long and delightful series. Mr. Lang earnestly disclaims the authorship: he finds out where the stories are and advises and superintends; Mrs. Lang has translated and adapted them, or almost the whole of them, from various languages; but nobody really wrote them, "they arose like wild flowers before men had any education to quarrel over." To write a new fairy tale, "the thing is impossible." We count thirty-three tales in this volume. They come from all points of the compass—from Ireland and the West of Scotland, from Wales and Brittany, from Scandinavia and Portugal, from Northern India, and elsewhere. They form a most varied and delightful collection. There are six coloured plates, twenty full-page plates not coloured, and twenty-six illustrations in the text, by H. J. Ford. A beautiful and most attractive book.

Rewards and Fairies, by Rudyard Kipling (6s., Macmillan), is a mixture of heroism and faery, after the manner of "Puck of Pook's Hill," and introducing again some of the characters of that volume with many others that appear here for the first time. The fashioning of the book exhibits Mr. Kipling's literary art with remarkable force; although one cannot but doubt how far his young readers will enter into his conceptions. However, they will enjoy the whimsicalities of the personages in their degree, and that will be ample. There is some strong verse in the book, notably the poem called "Cold Iron." Among the stories "Marklake Witches" bears the palm: the rest are but slight in comparison. Four illustrations by Frank Craig.

The Scottish Fairy Book, by Elizabeth Grierson (6s., Fisher Unwin), furnishes a representative collection of some forty tales from the different classes of Scottish folk-lore, "taking, when possible, the stories which are least well known, in the hope that some of them at least may be new to the children of this generation." "Of Brownys and of Bogillis full this Buke" is the appropriate motto, from Gavin Douglas. Besides brownies and bogies, there are mermen and mermaids, and kelpies and witches, tales of speaking animals, weird tales of enchantment, and legendary tales half real half mystical. The selection is excellent. The volume is on the same plan as "The Welsh Fairy Book" and "The Irish Fairy Book," which we wot of. There are a hundred whimsically humorous and quaint illustrations by Morris Meredith Williams. A very delightful and most interesting volume, beautifully printed and got up.

Fairies I have Met, by Mrs. Rodolph Stawell (3s. 6d. net, Hodder & Stoughton), seems an uncannily suggestive title, but probably they were good fairies. There are a dozen charming stories, with eight illustrations in colour by Edmund Dulac.

STORIES OF THE SCHOOL.

Off the Wicket, by Harold Avery (3s. 6d., Nelson), opens with something like a theft of stamps; and certainly "when it comes to forcing locks to get at another fellow's things, it's time to draw the line." Presently there are various "lawless escapades and ragging," and generally there are disorderly elements in the school economy. Half way through the book a new head master takes up the reins of government with a firm and discreet hand; but still there are minor troubles, and "the slackers" have to qualify for membership by some deed of derring-do, and postal orders disappear like the foreign stamps. The complications eventually get disentangled, and wrongs are righted. A brisk and interesting development of certain phases of school life. Four illustrations.

The Manor House School, by Angela Brazil (2s. 6d., Blackie), is one of the most delightful of the girls' stories of the season. Miss Russell's school drains go wrong, and the school migrates for the summer term to an old manor house in Somersetshire, which is possessed of a mystery. Two twelve-year-old pupils determine to pluck out the heart of the mystery, and accordingly meet with startling adventures and experiences in following up clues false and true. In the course of a game of hide-and-seek there occurs "a surprise," when there might easily have occurred something worse. Manor houses of the time of King James I contained clever contrivances for hiding-places. The story is worked out with much ingenuity and in excellent tone. Five illustrations by A. A. Dixon.

The Cleverest Chap in the School, by Robert Leighton (2s. 6d., Jarrolds), belongs to the series of "Jarrolds' New Empire Rewards for Boys and Girls." There has been a theft of diamonds and things at Wrinklebury Hall, and diamonds and things have been accidentally discovered in a locker on the "Nancy" schooner by one of the schoolboys that are accustomed to bathe from her deck. The boy shuts the locker, reports to Captain Quiller on shore, is sent back by the Captain with a key to look up the valuables, finds they have been removed, and is himself locked into the cabin all night—and arrested next day for burglary; and his sister was lady's maid at the Hall.

(*Continued on page* 458.)

THE CURSE OF SLEEPLESSNESS.

Outside the list of the grave diseases which threaten life there is none more productive of suffering, more depressing to the mind, more racking to the nerves, or more fatiguing to the body than inability to sleep.

Only those who have suffered from this curse can understand the full meaning of Shakespeare's immortal definition of sleep as the "balm of hurt minds, chief nourisher at life's feast."

Even those people who, unlike the writer, have never known what it is to lie, night after night, listening to the clocks chime through the darkness without ever closing their eyes, have nevertheless, some inkling of what this suffering means when they read of the devices to which famous men resort in order to obtain a few hours' sleep and get a little rest for body and mind.

The Earl of Rosebery, for instance, we have been told in the daily papers, drives for hours in the night, in his endeavour to woo sleep. Others, less strong minded, ruin their digestion, shatter their nerves, and even destroy their brain by resorting to morphia, chloral, bromides, and other deadly poisons.

The latter state of these people is even worse than their first, as their haggard white faces, their palsied hands, their limp bodies, and inert brains so abundantly and eloquently testify.

THE MEANS OF CURE.

Happily for such sufferers Science comes with a message of hope, tidings of great comfort, and the promise not merely of an amelioration of this appalling condition, but the certainty of cure, when the body will be, once again, wrapt in the mantle of sweet sleep.

All this may be achieved by the use of Sanatogen, the world renowned tonic with lasting effects. Its power as a restorative in nervous conditions is now a matter of common knowledge, and it is by reason of its action on the nervous system that it is able to produce so powerful an effect in insomnia.

Sanatogen feeds the nerves, and rapidly restores to the body its full supply of phosphorus, which is invariably deficient in insomnia. In this way, it not only strengthens the brain and the nervous system generally, but, by so doing, it also removes the long list of nervous symptoms like depression, lassitude, disinclination for bodily and mental effort, impaired memory, and the fear of impending evil, to name a few of those which sooner or later follow, if they do not precede, the inability to sleep.

Sanatogen, however, does more than this. By restoring sleep it prevents nervous breakdown, while, when people are unfortunate enough to have already broken down and are threatened with Neurasthenia, that terrible nervous malady of our century, it will restore them to health far more rapidly than anything else, giving them new strength, new force, new vigour, and new vitality.

THE PROOF OF CURE.

Thousands of testimonials have been received from people who have been cured of sleeplessness and all its attendant disabilities by means of Sanatogen. The wife of a doctor and J.P. in Scotland writes:—"My nervous system was so much impaired that I could not sleep without sedatives and my appetite was quite gone; in fact, I had a perfect distaste for anything in the shape of food. *Many other remedies had been tried, but had little or no effect.* At last my husband sent for Sanatogen and the effect was marvellous. In the course of a week after taking Sanatogen I felt quite different. My nerves were soothed and I required in a very short time no stimulants nor sedatives."

Lady Henry Somerset, the celebrated philanthropist, states:—"Sanatogen undoubtedly restores sleep and invigorates the nerves, and it braces the patient to health."

Sanatogen's merits are endorsed by over twelve thousand doctors, including nine physicians to nine crowned heads, while hundreds of testimonials have been received from celebrities.

Sanatogen may be obtained of all chemists, price 1s. 9d. to 9s. 6d. per tin. An interesting pamphlet on the conditions in which it is particularly indicated has been written by a physician and will be sent, post free, to all who send a post card asking for it, and mentioning *The Educational Times.*

Address The Sanatogen Company, 12 Chenies Street, London, W.C. [Advt.

and he was at the Hall on the night of the crime, and his knife was left among the geraniums. But he was not "the cleverest chap in the school." The burglary leads to strange complications, some of them not readily credible, but none the less exciting; and it would not be surprising if they end in a tragedy—perhaps during a cruise of the "Nancy." The story is cleverly written, and interesting throughout. Five illustrations by P. A. Staynes.

The Lower Fourth, by Brenda Girvin (2s., Nelson), is a series of school tales for girls, four for each of four terms, and an additional tale for the summer term. There is cricket and hockey as well as lessons, "a perfect craze" of picture post card collecting, mild escapades and other "affairs," measles and chocolates. The sketches are slight but vivacious, and they will contribute to the diversion of schoolgirl readers. Two pretty illustrations by E. Everett.

Verity Lads, by Keighley Snowden (6s., Werner Laurie), is in the form of letters of Harry Verity to his uncle Donty—the outcast of the family, for had he not been incarcerated for poaching?—but uncalculatingly generous, and "of flowers and of every living thing he was fond in the way that children are." "Here you have just a small boy's open mind, with all the original sin that good people may care to find in it"—a plenary confession. Harry is a West Riding boy, of "a town that had many barbarous customs and ideas," but warm-hearted, simple folk; and he tells "the story of the pinched little bereaved household kept by the rope and twine shop"—not the ordinary kind of story, but "all about a thousand things that seemed funny and vexatious to an irresponsible youngster, conscious of his wonderful uncle's unrebuking smile." The picture is of forty years ago, and, while it gives glimpses of the old elementary school, it is rather a general representation of human nature acting vigorously in a rude environment. A quite distinctive book, intensely interesting, and much more profound than appears on the surface. We rather think it is not expressly meant for a Christmas book, but, though it has no pictures, it will serve the purpose better than most.

For the Children.

Blackie's Children's Annual (3s. 6d.), now in its seventh year of issue, is an established favourite. It provides liberally for the sharpest juvenile appetite and for the most varied tastes. The stories are based on subjects of perennial interest to children and written in appropriate language and spirit; and the illustrations are numerous and good, about a third of them being coloured. A handsome and entertaining volume.

Herbert Strang's Annual (5s. net, Henry Frowde and Hodder & Stoughton) is rather more advanced in character, containing articles of historical and descriptive interest likely to be extremely attractive to school folk, and not omitting puzzles and paradoxes. The papers are well written, and instructive as well as amusing. There are eight plates in bold colours and many other effective illustrations. The annual fully deserves its popularity.

Mrs. Jumbo at Home (2s. 6d., Blackie), by Harry B. Neilson, provides much amusement in verse and pictures. All sorts of animals mingle in the fun and are pictured in humorous situations. The print is black and bold, and there are twenty-four full-page colour illustrations and forty-eight vignettes. A bright and attractive volume.

Rough and Tumble, by Cecil Aldin (6s. net, Henry Frowde and Hodder & Stoughton), prepares us by its title for lively doings, and it rises to expectations. Rough and Tumble are two dogs, and the vicissitudes of their adventurous career are pictured and described on opposite pages. The illustrations are particularly good and effective. An amusing and handsome volume.

Field Babies, also by Cecil Aldin (5s., Henry Frowde and Hodder & Stoughton), is planned on the same lines as "Rough and Tumble," with plenty of animal pictures, especially dogs, and descriptive stories opposite the illustrations. This volume, too, is sure to be appreciated by young folk.

The Adventures of Two Dutch Dolls and a Golliwog (2s. 6d. net, Longmans) is a tasteful and delightful volume—the first of a cheaper reissue of the well-known "Golliwog" series of books for children, by Florence K. and Bertha Upton, which have amused and gratified children every Christmas for nearly half a generation. The "Adventures" are as charmingly fresh as ever.

The Story of Mother Goose, "also of her son Jack, and of the Goose that laid the Golden Egg," is always new and wonderful. Mr. Frank Adams retells it in brisk verses, and illustrates it vividly by twelve full-page coloured drawings and other pictures. The tasteful cover is adorned with an inset coloured illustration (2s., Blackie).

How They came Home from School, by Mrs. S. R. Praeger (2s. 6d., Blackie), naturally follows "How They went to School," by the same author. Hal and Kitty manage to get into mischief on the way back as well as on the way there, but we dare say they got out of it somehow. A charming volume in picture boards, with twenty-four full pages in colour.

Our Holiday on a Barge, by Alice Talwin Morris, a sequel to "Our Caravan," is a delightful and instructive story relating how a family passed a happy holiday on the river. It is cleverly illustrated by Gordon Brown, R.I.—*The Roundabout Book,* by Clare Jerrold, narrates adventures met by children in town and in country and at the seaside, with appropriate illustrations by Charles Robinson.—*Hans Andersen's Fairy Tales,* or rather half-a-dozen of them, selected and edited for children, and illustrated by Helen Stratton, is a delightful book for young folk, with a bright picture cover.—Each of these three volumes is furnished with over thirty full-page drawings and a number of smaller illustrations. They have just been added to Messrs. Blackie's Popular Shilling Series.

The Doll Town Day, drawings by G. F. Christie and rhymes by Jessie Pope (1s. 6d., Blackie), depicts amusingly the doings of Doll Town, from spring cleaning to a visit to the Doll Town Zoo. There are sixteen full pages in colour and numerous vignettes in black and white. The type is large and wide, and the illustrations forcible.

Holiday Pictures and Stories for Little Folk (1s. 6d., Blackie) is a delightful volume for children, liberally and tastefully produced, with picture cover. The illustrations are plentiful and mostly coloured.

Very Short Stories for Very Short People and *Very Short Poems for Very Short People* (2s. each, Nelson) are excellent collections of old stories and poems familiar to the young of many generations—Cinderella, Blue Beard, Dick Whittington, &c.; Margery Daw, Miss Muffett, &c. The type is bold and spacious, and the illustrations are abundant, mostly coloured. The get-up is chaste and attractive.

Tales and Talks from History (2s. 6d., Blackie) is a splendid picture book of Historical Tales for children, likely to awaken an early love of history, and quite as interesting as any fiction—Horatius keeping the Bridge, Casabianca, Drake, Cromwell, Napoleon, &c., down to the Coronation of Edward VII. The tales are well written and spaciously printed; and there are over thirty pages in full colour and a large number of black-and-white illustrations by T. Heath Robinson.

The Story of a Brave Child, by Annie Mathieson (3s. 6d., Nelson), is "a Child's Life of Joan of Arc." The story is written with the simplicity suitable for children, and it is generously illustrated with eight excellent pictures (after masters) and a coloured frontispiece. The volume is handsomely printed and got up.

Never-Never-Land (1s. 6d., Nelson) consists of "Rhymes for You and Me"—rhymes old and new, simple and interesting to children. Besides some ten or a dozen full-page coloured pictures, there are numerous dainty little illustrations about the margins and a picture cover. A charming collection.

Red Cap Tales told from Ivanhoe, by S. R. Crockett (1s. 6d., Black), is a fresh volume in the well known series. The story is effectively told, and there are eight full-page illustrations in colour and a picture cover.

The Hunting of the Snark, by Lewis Carroll (1s. net, Macmillan), is a "miniature edition," nicely printed and deftly illustrated. The get-up is chaste and the form convenient.

Troublesome Comforts, by Geraldine Robertson Glasgow, and *All through a Rat,* by Alice Collyer, are excellent specimens of a ninepenny series of stories for children issued by Messrs. Nelson. The first narrates the incidents of a summer holiday, "with the paddling and the boats, the rocks and the island," and perhaps in the course of it the youngsters learn lessons that tend to render them less "troublesome comforts" to their patient mother. The second is as imaginative as the first is realistic. Both are agreeably written and interesting. Each has a coloured frontispiece.

The Lives of the Fur Folk, by M. D. Haviland (5s. net, Longmans), narrates, by the aid of incidents founded on fact, the story of Radpad the Fox, Fluff-Button the Rabbit, Grimalkin the Cat, and Stubbs the Badger—a charming and instructive volume, beautifully got up. There are four excellent plates and many marginal illustrations by E. Caldwell.

Little Plays for Little People, pictured by Millicent Sowerby, written by Githa Sowerby (3s. 6d. net, Henry Frowde and Hodder & Stoughton), will delight the fortunate recipients. There are half-a-dozen plays, suitable for children, varied and vivacious, and a whole dozen of full-page illustrations, delicately drawn and brightly coloured. The get-up is chastely artistic.

Tanglewood Tales—The Minotaur, The Dragon's Teeth, and The Pomegranate Seeds—are issued by Messrs. Nelson in a picture cover, and in beautiful type, with four full-page illustrations in colour and numerous insets (1s.). A pretty little book.

My First Book about Gardening (6d., Nelson) offers hints for little gardeners in a very simple and interesting form, with a coloured frontispiece and a multitude of marginal pictures half (or more) of them in colours.

Our Happy Home Book for Little Folk (2s., Blackie) is a book of stories and pictures, the stories mostly in simple verse and the pictures plentiful and good, mainly in colours. An attractive volume for young folk.

Religious and Moral.

From Slavery to Freedom, by S. B. Macy (3s. 6d. net, Longmans), is a handsome volume narrating in considerable detail, in the light of the most recent researches, the story of Moses and of the deliverance of the Israelites from Egyptian bondage. The narrative is very full, clear, and simple; and about a score of sets of verses are interspersed. The volume is on the same plan as a previous work by the

author, "In the Beginning"—the story of Genesis told to children. It is splendidly illustrated by eight coloured plates and sixty other pictures by Tony Sarg, and nine by Charles Heath Robinson.

The Boiling Caldron, by Lettice Bell, in the series of "Never-Old Stories," tells in short chapters the stories of the prophecy of Jeremiah (3s. 6d., Hodder & Stoughton). The stories, as Dr. Campbell Morgan says in a brief introduction, "are told in such wise as to give the child a consciousness of the historic background, sympathy with the prophet, and a clear idea of the general purpose of his work." By means of occasional references the co-operation of the reader is invited, with the view of familiarizing him in an elementary way with the Bible text. An excellent and carefully prepared volume. Four illustrations.

Various.

The Story of a Year, by Mrs. Molesworth (3s. 6d., Macmillan), relates the experiences of Mrs. Derwent and her daughter during the absence of Mr. Derwent in the East Indies, looking after some property that the local manager was reported to have practically ruined, having "decamped, leaving things in the direst confusion, and carrying off all he could lay hands on." The ladies go to live with a relative, Miss Leinster, a rich old lady, but find things chillingly uncomfortable, and by and by change quarters for the better. There is strong sense of unreality—or, at any rate, unpracticality—in the whole business, even supposing that Dr. Hadwen was right in saying that Miss Leinster was "a monomaniac, a lunatic." Eight illustrations by Gertrude Demain Hammond.

Uncle Hal, by Lady Macalister (3s. 6d., Jarrolds), is the story that gained the £100 prize recently offered to open competition by Messrs. Jarrolds, and it is enrolled in their excellent series of "Empire Awards." Dr. and Mrs. Rutherford go abroad some weeks for the doctor's health, leaving at home their five children—three boys and two girls, from fourteen to nine, "all very healthy and hungry." Presently his brother, Uncle Hal, returns from exploration in Africa, introduces himself, and drives the children about in his motor-car. Still they are not quite sure about him, and their suspicion is accentuated by the occurrence of a burglary in a neighbour's house. Among many other diversions there is hunting for the burglar and the jewels, for which a good round reward is offered. It is no easy task to keep half a dozen youngsters continually occupied in an interesting way, but Lady Macalister manages to do it with great dexterity. The story is bright and simple, and the interest is well maintained. Frontispiece and eight other illustrations by Arthur Twidle.

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Crippled School Child, The Problem of the: an Account of the Education and Treatment of Crippled School-Children in a Residential School. By E. D. Telford, F.R.C.S. 6d. Sherratt & Hughes.

Governing Classes of England, A Crisis in the Education of the. By Alexander Devine, Head Master of Clayesmore School, Pangbourne. 1d. Garden City Press (Letchworth and London).

London University Guide, and University Correspondence College Calendar, 1911. London: University Correspondence College.

Matriculation Directory, No. 56, September, 1910. Clive (University Tutorial Series).

[Articles on text-books; examination papers; solutions.]

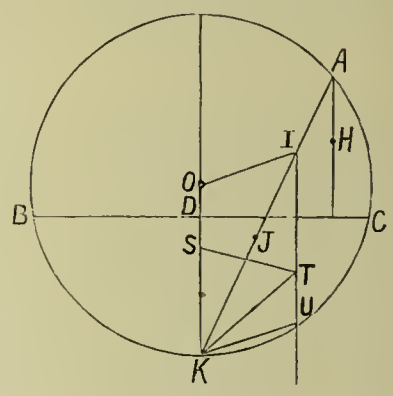
Music Study, The Appreciative Aspect of: some Thoughts and Discussions. By Stewart Macpherson. 6d. Joseph Williams, Ltd. (32 Great Portland Street, W.).

Northampton Polytechnic Institution, London, E.C.: The New Generating Station described and pictured.

MATHEMATICS.

16946. (Philip T. Stephenson, B.A.)—In a triangle ABC, O and I are the circum-centre and in-centre, D the centre of BC, K the centre of the arc BC opposite to A. Take S in DK, so that DS = OD; J in KI, so that IJ = IA. Complete the parallelogram KOIU. Cut off from IU, IT = $2r$. Prove (1) UJ = ST; (2) S, J, T, U, K lie on a circle; (3) SJ = TU. Deduce Feuerbach's theorem. (If this proof of Feuerbach's theorem has been given before, I should be glad to be informed.)

Solution by R. F. Davis, M.A.



The above outlined proof of Feuerbach's theorem scarcely differs from the well known proof by W. S. McCay, M.A., of Trinity College, Dublin, which was published about the year 1889 in the *Educational Times Reprint*, Vol. LI, p. 83. (*Cf.* also Vol. LXIV, p. 57.)

For the sake of those who have no opportunity of making the above references, the salient points may be noticed:—

(i) Since $IJ.IK = IA.IK = 2Rr$
$= IU.IT$,
J lies on the circle about STUK.

(ii) Since $UK^2 = OI^2 = R(R-2r) = UT.UI$,
the angle $TKU = KIT = SKJ$.

(iii) H being the orthocentre, AH is equal and parallel to 2OD = OS; and the diagonals of the parallelogram AOSH bisect each other.

(iv) $2NI = SJ = TU = R-2r$.

The necessity for Mr. Stephenson's step (1) is not quite clear.

16936. (Lt.-Col. Allan Cunningham, R.E.)—Let $M_q = (2^q-1)$, where q is an odd integer. Show that $M_q = T^2-2U^2 = 2U'^2-T'^2$ always; also that, when q is prime, $M_q = T^2-2(qu)^2$ always; and find the actual expressions. Show also that, when q is prime, M_q = one of $(qt)^2-2U^2$, $(2qu')^2-T'^2$, $2U'^2-(qt')^2$; show when each form is possible, and show how to find the actual numerical expressions for given (prime) values of q without tentative work, and give the actual results when $q = 3, 5, 7, 11, 13, 17$. Examine also the possibility of the above forms when q is composite, and give the results when $q = 9, 15$.

Solution by the Proposer.

$$M_q = 2^q-1 = 2\{(2^{\frac{1}{2}(q-1)})^2-1^2\} = 2U'^2-T'^2 \quad\ldots\ldots\ldots\ldots (1),$$
$$= (2^{\frac{1}{2}(q+1)}\mp 1)^2-2(2^{\frac{1}{2}(q-1)}\mp 1)^2 = T^2-2U^2 \ldots (2).$$

These prove that $M_q = 2U'^2-T'^2 = T^2-2U^2$ always.

ii. When q = prime = $8\kappa\mp 1$, then

$$U = 2^{\frac{1}{2}(q-1)}-1 \equiv 0 \pmod q = qu \quad\ldots\ldots\ldots\ldots (3a).$$

When q = prime = $8\kappa\mp 3$, then

$$U = 2^{\frac{1}{2}(q-1)}+1 \equiv 0 \pmod q = qu \quad\ldots\ldots\ldots\ldots (3b).$$

These, along with (2), show that when q is prime, $M_q = T^2-2(qu)^2$ always.

iii. Let $\tau_r^2-2v_r^2 = +1$ be the r-th solution of $\tau^2-2v^2 = +1$.

Then $M_q = \{T^2-2(qu)^2\}(\tau_r^2-2v_r^2)$, if q be prime (by above)
$= (\tau_r T\mp 2v_r qu)^2-2(v_r T\mp \tau_r qu)^2$
$= (qt)^2-2U^2$, if $\tau_r \equiv 0 \pmod q$ ..... (4).

This requires that $q = 8\kappa+1$ or $8\kappa+3$ ..... (4a).

iv. Let $\tau_r'^2-2v_r'^2$ be the r-th solution of $\tau^2-2v^2 = -1$.

Then $M_q = \{T^2-2(qu)^2\}(2v_r'^2-\tau_r'^2)$, if q be prime (by above)
$= 2(v_r'T\mp\tau_r' qu)^2-(\tau_r'T\mp 2v_r' qu)^2$.

iv*a*. Hence $M_q = 2(qu')^2-T'^2$, if $v_r' = 0 \pmod q$ ..... (5).

This requires that $q = 4\kappa+1$ ..... (5*a*).

iv*b*. And $M_q = 2U'^2-(qt')^2$, if $\tau_r' \equiv 0 \pmod q$ ..... 6).

This requires that $q = 8\kappa\mp 1$ ..... (6*a*).

v. As q can be a divisor of *only one of the three kinds* of series of τ_r, v_r', τ_r', it is clear that one (and only one) of the three forms ($T = qt$, $U' = qu'$, $T' = qt'$) can be obtained. And the actual values of T, U′, T′ are given by results (4), (5), (6) by using the values of τ_r, v_r', τ_r' (which contain the factor q) from the known solutions of $\tau^2-2v^2 = \pm 1$; this involves no tentative work.

But, when q is *composite*, the conditions (3*a*), (3*b*) cannot usually be satisfied; but the conditions $\tau_r \equiv 0$, $v_r' \equiv 0$, $\tau_r' \equiv 0 \pmod q$ required

for results (4), (5), (6) can be satisfied whenever q consists of a product of primes of the respective forms (4a), (5a), (6a).

The following gives the results for all values of q (including composites, except $q = 21$) $\not> 25$.

q	$T^2-2(qu)^2$		$(qt)^2-2U^2$		$2(qu')^2-T'^2$		$2U'^2-(qt')^2$	
	T	u	t	U	u'	T'	U'	t'
3	5,	1	1,	1	.		.	
5	9,	1	.		2,	13	.	
7	15,	1	.		.		26,	5
9	167,	13	17,	107	.		.	
11	65,	3	165,	1297	.		.	
13	129,	5	.		482,	8861	.	
15	.		17,	127	.		.	
17	511,	15	151,	1797	.		.	
19	1025,	27	53013,	712231	.		.	
21	?		?		?		?	
23	4095,	89	.		.		6794802,	423637
25	.		.		492,	16401	.	

16935. (Professor Nanson.)—If $a, b, c, \ldots$ are n positive quantities which are not all equal, show that

$$(n-1)\Sigma a^2 > 2\Sigma ab, \quad (n-2)\Sigma a^3b^3 > 3\Sigma a^2b^2c^2,$$
$$(n-3)\Sigma a^4b^4c^4 > 4\Sigma a^3b^3c^3d^3,$$

and so on, and hence show that the arithmetic mean is not less than the geometric mean.

Solution by C. M. Ross, B.A.

Let l be the nth positive quantity.

(1)
$$a^2+b^2 > 2ab$$
$$a^2+c^2 > 2ac$$
$$a^2+d^2 > 2ad$$
$$\ldots \quad \ldots \quad \ldots$$
$$a^2+l^2 > 2al$$
$$b^2+c^2 > 2bc$$
$$b^2+d^2 > 2bd$$
$$\ldots \quad \ldots \quad \ldots$$
$$b^2+l^2 > 2bl$$
$$\ldots \quad \ldots \quad \ldots$$
$$k^2+l^2 > 2kl.$$

Therefore
$$(n-1)a^2+(n-1)b^2+\ldots+(n-1)l^2 > 2ab+2ac+\ldots+2kl,$$
i.e.,
$$(n-1)\Sigma a^2 > 2\Sigma ab.$$

(2) $a^3b^3+b^3c^3+c^3a^3-3a^2b^2c^2$
$$= 3(ab+bc+ca)[a^2b^2+b^2c^2+c^2a^2-abc(a+b+c)].$$

Now, since $A^2+B^2+C^2 > AB+BC+CA$,
then $a^2b^2+b^2c^2+c^2a^2 > abc(a+b+c)$;
therefore $a^3b^3+b^3c^3+c^3a^3-3a^2b^2c^2 > 0$,
i.e., $a^3b^3+b^3c^3+c^3a^3 > 3a^2b^2c^2$;
also $a^3b^3+b^3d^3+d^3a^3 > 3a^2b^2d^2$
$$\ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots$$
$$j^3k^3+k^3l^3+l^3j^3 > 3j^2k^2l^2.$$
Therefore $(n-2)\Sigma a^3b^3 > 3\Sigma a^2b^2c^2$.

(3) $a^4b^4c^4+b^4c^4d^4+c^4d^4a^4+d^4a^4b^4 > 4a^3b^3c^3d^3$,
since $A^4+B^4+C^4+D^4 > 4ABCD$;
also $a^4b^4d^4+b^4d^4e^4+d^4e^4a^4+e^4a^4b^4 > 4a^3b^3d^3e^3$
$$\ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots$$
$$i^4j^4k^4+j^4k^4l^4+k^4l^4j^4+l^4j^4i^4 > 4i^3j^3k^3l^3.$$
Therefore $(n-3)\Sigma a^4b^4c^4 > 4\Sigma a^3b^3c^3d^3$.

The last of the series of given inequalities is
$$\Sigma a^nb^nc^n\ldots k^n > na^{n-1}b^{n-1}c^{n-1}\ldots l^{n-1} \quad \ldots\ldots\ldots\ldots\ldots (\alpha).$$
Now put
$$a^nb^nc^n\ldots k^n = A$$
$$a^nb^nd^n\ldots l^n = B$$
$$\ldots \quad \ldots \quad \ldots \quad \ldots$$
$$b^nc^n\ldots l^n = L.$$
By multiplication we have
$$(a^nb^nc^n\ldots l^n)^{n-1} = ABC\ldots L; \quad \text{therefore} \quad (abc\ldots l)^{n-1} = (ABC\ldots L)^{1/n}.$$
(α) now becomes $A+B+C+\ldots+L > n(ABC\ldots L)^{1/n}$
or
$$(A+B+C+\ldots+L)/n > (ABC\ldots L)^{1/n};$$
which proves that the arithmetic mean of n positive quantities is greater than their geometric mean.

16942. (A. W. H. Thompson.)—Show that the conics obtained by reciprocating a circle with regard to the members of a system of concentric rectangular hyperbolas are all touched by another circle.

Solution by W. F. Beard, M.A.

Take as origin the common centre O of the rectangular hyperbolas, and take the line joining O to the centre of the circle as axis of x.

Let the equation of the circle be $(x-h)^2+y^2 = a^2$, and let the equations of the asymptotes of a rectangular hyperbola be
$$x\sin\alpha - y\cos\alpha = 0, \quad x\cos\alpha + y\sin\alpha = 0.$$
Thus the equation of this hyperbola is
$$(x\sin\alpha - y\cos\alpha)(x\cos\alpha + y\sin\alpha) = c^2 \quad \ldots\ldots\ldots\ldots (1),$$
where c is constant for points on this curve.

(1) becomes $(x^2-y^2)\sin 2\alpha - 2xy\cos 2\alpha = 2c^2$.

The pole of $x'y'$ with regard to this is
$$x(x'\sin 2\alpha - y'\cos 2\alpha) - y(x'\cos 2\alpha + y'\sin 2\alpha) = 2c^2 \quad \ldots\ldots (2).$$
Also, if $x'y'$ is on the circle, $(x'-h)^2+y'^2 = a^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$.

Thus, for the envelope of (2), we have
$$\frac{x'-h}{x\sin 2\alpha - y\cos 2\alpha} = \frac{y'}{-(x\cos 2\alpha + y\sin 2\alpha)} = [\text{from (3)}]\ \frac{a}{\sqrt{(x^2+y^2)}}.$$
Hence the required envelope is, from (2),
$$h(x\sin 2\alpha - y\cos 2\alpha) + [a(x^2+y^2)/\sqrt{(x^2+y^2)}] = 2c^2,$$
or
$$\sqrt{(x^2+y^2)} = h/a(-x\sin 2\alpha + y\cos 2\alpha + 2c^2/h).$$
This is a conic, with O as focus and h/a as eccentricity.

Thus the reciprocals of the circle are a series of similar conics with the same focus. If the rectangular hyperbolas are all equal, then the reciprocals will be equal conics, since the perpendicular from O on the directrix $= 2c^2/h$, and hence these conics will each touch two circles, centre O, whose radii are $2c^2h/(h+a)$ and $2c^2h/(h-a)$.

12344. (Professor Morley.)—When the curve $y^2 = 4x^3 - g_2x - g_3$ is bipartite, prove that the area of the oval is $\frac{2}{5}(3g_3\omega_1 - 2g_2\eta_1)$, Weierstrass's notation being used.

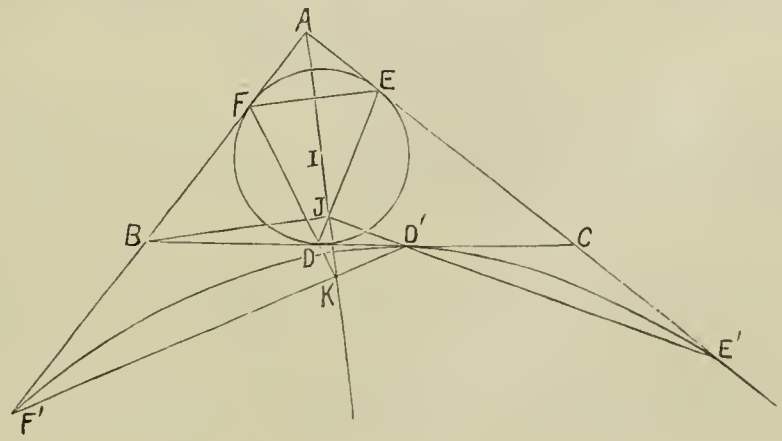
Solution by D. Edwardes, B.A., *and another.*

If $x = \wp u$, then $y = \wp' u$, and the area
$$A = 2\int y\,dx = 2\int \wp'^2 u\,du,$$
where we may take the limits to be ω_2, and $\omega_2+\omega_1$, or $-\omega_3$. Since $\wp'^2 u$ is doubly periodic with the same periods as $\wp u$, we can write
$$\wp'^2 u = C - 24s_4\wp u + 4\wp^{iv}u/5!,$$
and, comparing the absolute terms of the two members, we have
$$-80s_6 = 4.120s_6/5! + C,$$
and therefore $C = -84s_6$. Hence
$$A = 2\int_{-\omega_3}^{\omega_2} \{4\wp^{iv}u/5! - 84s_6 - 24s_4\wp u\}\,du.$$
Since $\wp'''u = 12\wp u\wp' u$ and $\wp'\omega_2 = 0$, $\wp'\omega_3 = 0$, and $\wp u = -\zeta' u$, we have, on integrating,
$$A = 2\{24s_4[\zeta\omega_2 + \zeta\omega_3] - 84s_6(\omega_2+\omega_3)\},$$
since ζ is an odd function, and therefore
$$A = 2\{24s_4(\eta_2+\eta_3) + 84s_6\omega_1\} = 2\{84s_6\omega_1 - 24s_4\eta_1\}.$$
Substituting for s_4 and s_6 their values $g_2/60$ and $g_3/140$, and reducing, we have
$$A = \tfrac{2}{5}(3g_3\omega_1 - 2g_2\eta_1).$$

16944. (R. C. Archibald, Ph.D., M.A.)—Let I be the centre of a circle which touches the sides of a triangle ABC in D, E, F. Show that AI produced meets ED in J and FD produced, say, in K, such that BJ is parallel to CK and EF. State a similar theorem for an escribed circle.

Trigonometrical Solution by James Blaikie, M.A., *and* C. M. Ross, B.A.
Geometrical Solutions (I) *by* W. F. Beard, M.A.;
(II) *by* Saradakanta Ganguli, M.A.;
(III) *by* Constance I. Marks, B.A., *and* Keshub Dass De.

Trigonometrical Solution.



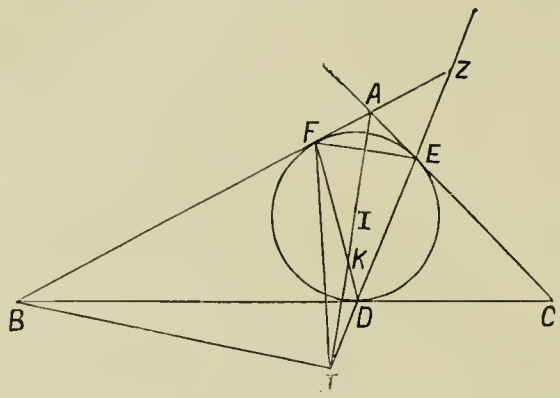
In the triangle AEJ we have

$$\mathrm{AJ} = \mathrm{AE}\,\frac{\sin \mathrm{AEJ}}{\sin \mathrm{AJE}} = (s-a)\,\frac{\cos\frac{1}{2}\mathrm{C}}{\sin\frac{1}{2}\mathrm{B}} = (s-a)\sqrt{\left(\frac{s(s-c)}{ab}\cdot\frac{ac}{(s-a)(s-c)}\right)}$$

$$= \sqrt{\left(\frac{sc(s-a)}{b}\right)} = c\sqrt{\left(\frac{s(s-a)}{bc}\right)} = c\cos\tfrac{1}{2}\mathrm{A} = \mathrm{AB}\cos\mathrm{BAJ}.$$

It follows that BJ is perpendicular to AJ, and therefore parallel to FE. Similarly CK is parallel to FE. It can, in like manner, be shown that if the circle escribed to BC meet the sides in D′, E′, F′, then D′E′, D′F′ pass through the points J, K, and are at right angles to DE, DF.

Geometrical Solutions.



(I) Produce DE to meet BA at Z. Join JF.

By symmetry about AI, we see AJ bisects ∠FJE.

Again, by Menelaus' theorem,

BZ/ZA.AE/EC.CD/DB $= -1$;

but AE = AF, EC = CD, DB = BF;

therefore

BZ/ZA = BF/FA,

and JA bisects ∠FJZ; therefore BJ bisects ∠FJE externally; therefore ∠BJA = 90°, and therefore BJ is parallel to EF; similarly CK is parallel to EF.

For an escribed circle the theorem is the same, and the proof is the same except that AJ bisects ∠FJZ externally. [Rest in *Reprint*.]

16514 [and 16550, which is identical with 16514]. (R. F. Davis, M.A.)—Factorize, algebraically, (1) $4x^6+2a^5x+a^6$, (2) $x^7-2a^2x^5+a^7$; and thence write down the factors of 4,000,021 and 9,800,001.

Note by J. J. Barniville, B.A.

To the list of composite trinomials in Vol. 16, p. 40, the following may be added:—

(1) x^m+x^n+1 is divisible by x^2+x+1 when $m-1$ and $n-2$ are divisible by 3;

(2) x^m+2x^n+1 is divisible by $x+1$ when m is even and n is odd;

(3) x^m-2x^n+1 is divisible by $x-1$;

(4) $ax^m+bx^n-(a+b)$ is divisible by $x-1$;

(5) ax^m+bx^n+a+b is divisible by $x+1$ when m and n are odd;

(6) $u_{n-1}x^n+u_nx^{n-1}-1$ is divisible by x^2+ax-1 when $u_1=1$, $u_2=a$, $u_n+au_{n+1}=u_{n+2}$ (*e.g.*, x^3+2x^2-1, $2x^4+3x^3-1$, $3x^5+5x^4-1$, &c., are divisible by x^2+x-1);

(7) $x^6+8x^2-1=(x^3+2x^2+2x-1)(x^3-2x^2+2x+1)$.

16821. (M. T. Naraniengar, M.A.)—Given the symmedian, the centre and radius of the circum-circle of a triangle, show that the locus of the centre of gravity is a circle.

16966. (M. T. Naraniengar, M.A.)—Given the centre of gravity, the centre and radius of the circum-circle, find the locus of the symmedian point.

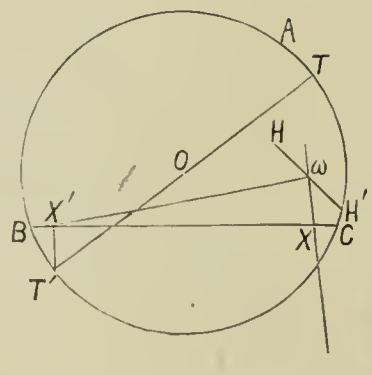
Solution by C. E. Youngman, M.A.

A triangle and its first Brocard triangle are two similar figures, having for double point the common centroid G; therefore their circum-circles subtend equal angles at G. If then, as here, these two circles are given, their circle of similitude is the locus of G.

In like manner the locus in Question 16966 is a circle of similitude. For when G is given the orthocentre H is given; and the circle on diameter GH circumscribes a certain triangle similar to the main triangle, and having the same symmedian point: see Casey's *Conics*, 2nd edition, p. 438.

Circumscribed Rectangular Hyperbolas.

By W. Gallatly, M.A.



1. Let TOT′ be any circum-diameter. Then XYZ, X′Y′Z′, the Simson-lines of T and T′, cut at right angles at a point—call it ω—on the Medial circle; and if H be the orthocentre,

$$\omega\mathrm{H}' = \omega\mathrm{H}.$$

Let $\lambda\mu\nu$ (λ acute) be the direction angles of XYZ; then $\frac{1}{2}\pi-\lambda$, ..., are those of X′Y′Z′.

Let x_1y_1, x_2y_2, x_3y_3, h_1h_2, $h_1'h_2'$ be the perpendiculars on XYZ, X′Y′Z′ from A, B, C, H, H′.

It may easily be shown that

$$x_1 = 2\mathrm{R}\cos\lambda\sin\mu\sin\nu.$$

Hence $\quad y_1 = 2\mathrm{R}\sin\lambda\cos\mu\cos\nu$;

therefore $\quad 2x_1y_1 = \mathrm{R}^2\sin 2\lambda\sin 2\mu\sin 2\nu = 2x_2y_2 = 2x_3y_3$, from symmetry.

Again, since XYZ bisects TH,

h_1 = perpendicular from T on XYZ $= 2\mathrm{R}\cos\lambda\cos\mu\cos\nu$.

Hence $\quad h_2 = 2\mathrm{R}\sin\lambda\sin\mu\sin\nu$;

therefore $\quad 2h_1h_2 = \mathrm{R}^2\sin 2\lambda\sin 2\mu\sin 2\nu$.

And since $h_1' = h_1$ and $h_2' = h_2$; therefore $2h_1'h_2' = 2h_1h_2$.

Thus a rectangular hyperbola, having XYZ, X′Y′Z′ for asymptotes, and therefore ω as centre, can be drawn through A, B, C, H, H′, and the square of its semi-axis $k = \mathrm{R}^2\sin 2\lambda\sin 2\mu\sin 2\nu$.

2. It is known that angle OAT = OTA = λ, so that AOT $= \pi-2\lambda$. Hence, if p, q, r are the perpendiculars from A, B, C on TOT′, $p = \mathrm{R}\sin 2\lambda$, ..., and therefore $k^2 = pqr/\mathrm{R}$.

3. Suppose that the centre ω of the rectangular hyperbola is given, and that the asymptotes are required. With centre A′ (mid-point of BC) and radius A′ω cut BC in X, X′.

Then ωX, ωX′ are the asymptotes.

4. If ω is given, and TOT′ is required, draw the chord ωQ of the Medial circle perpendicular to BC.

Then TOT′ is parallel to A′Q.

5. The rectangular hyperbola is the isogonal conjugate of TOT′; and if inverse points P, P′ on TOT′ correspond to Q, Q′ in the rectangular hyperbola, then QQ′ is a diameter of the conic.

16863. (Professor Escott.)—In Pascal's Triangle,

1	1	1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8	9	
1	3	6	10	15	21	28	36		
1	4	10	20	35	56	84			
1	5	15	35	70	126				
1	6	21	56	126					
1	7	28	84						
1	8	36							
1	9								
1									

prove that the determinant of the n-th order, formed by taking the first n terms from any n consecutive rows, has the value unity.

Solutions (I) *by* Professor Nanson *and the* Proposer; (II) *by* Professor J. C. Swaminarayan, M.A., *and others*.

(I) Let Δ_0 denote the determinant, and let Δ_{r+1} be formed from Δ_r by striking out the first row and last column. Then, by subtracting each row from the succeeding row, we find successively

$$\Delta_0 = \Delta_1 = \Delta_2 = \Delta_3 = \&c. = \Delta_{n-1} = 1.$$

(II) Consider any two consecutive rows, say

$$a_1,\ a_2,\ a_3,\ a_4,\ \ldots\ldots\ a_n,$$
$$b_1,\ b_2,\ b_3,\ b_4,\ \ldots\ldots\ b_n.$$

In Pascal's triangle any term is formed by taking the sum of the term above it and the term before it. Therefore the result of subtracting the first row from the second will be to transform the second row into the form $\quad b_1-a_1,\ b_2-a_2,\ b_3-a_3,\ b_4-a_4\ \ldots\ b_n-a_n,$

that is, $\quad 0,\ b_1,\ b_2,\ b_3\ \ldots\ b_{n-1}$;

hence, in the general case, subtract each row from the succeeding row. In this way,

$$\begin{vmatrix} a_1 & a_2 & a_3 & a_4 & \ldots\ldots & a_n \\ b_1 & b_2 & b_3 & b_4 & \ldots\ldots & b_n \\ c_1 & c_2 & c_3 & c_4 & \ldots\ldots & c_n \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\ l_1 & l_2 & l_3 & l_4 & \ldots\ldots & l_n \end{vmatrix}$$

will become

$$\begin{vmatrix} a_1 & a_2 & a_3 & a_4 & \ldots\ldots & a_n \\ 0 & b_1 & b_2 & b_3 & \ldots\ldots & b_{n-1} \\ 0 & c_1 & c_2 & c_3 & \ldots\ldots & c_{n-1} \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\ 0 & l_1 & l_2 & l_3 & \ldots\ldots & l_{n-1} \end{vmatrix}$$

Repeating the same operation, n times, we shall have

$$\begin{vmatrix} a_1 & a_2 & a_3 & a_4 & \ldots\ldots & a_n \\ 0 & b_1 & b_2 & b_3 & \ldots\ldots & b_{n-1} \\ 0 & 0 & c_1 & c_2 & \ldots\ldots & c_{n-2} \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\ 0 & 0 & 0 & 0 & \ldots\ldots & l_1 \end{vmatrix}$$

which is equal to a_1, b_1, c_1, d_1, ... l_1, that is, unity.

QUESTIONS FOR SOLUTION.

16968. (D. Edwardes, B.A. Connected with Question 16882.)—Prove that

$$\begin{aligned}&(m-15)(m-5)(m-3)(m-1)(x+\tfrac{1}{2})(x+\tfrac{3}{2})(x+\tfrac{5}{2})(x+\tfrac{7}{2})\\ &+2^2.7\,(m-15)(m-7)(m-5)(m-8)(x+1)(x+\tfrac{3}{2})(x+\tfrac{5}{2})(x+\tfrac{7}{2})\\ &+2.5.7\,(m-15)(m-10)(m-8)(m-9)(x+2)(x+3)(x+\tfrac{5}{2})(x+\tfrac{7}{2})\\ &+2^2.7\,(m-15)(m-12)(m-10)(m-8)(x+3)(x+4)(x+5)(x+\tfrac{7}{2})\\ &+(m-14)(m-12)(m-10)(m-8)(x+4)(x+5)(x+6)(x+7)\\ &-2^3\,(m-15)(m-7)(m-5)(m-3)(x+\tfrac{1}{2})(x+\tfrac{3}{2})(x+\tfrac{5}{2})(x+\tfrac{7}{2})\\ &-2^3.7\,(m-15)(m-8)(m-7)(m-9)(x+2)(x+\tfrac{3}{2})(x+\tfrac{5}{2})(x+\tfrac{7}{2})\\ &-2^3.7\,(m-15)(m-8)(m-10)(m-11)(x+3)(x+4)(x+\tfrac{5}{2})(x+\tfrac{7}{2})\\ &-2^3\,(m-15)(m-12)(m-10)(m-8)(x+4)(x+5)(x+6)(x+7)\\ &\equiv 3.5.7\,[x+\tfrac{1}{2}(m-1)][x+\tfrac{1}{2}(m-3)][x+\tfrac{1}{2}(m-5)][x+\tfrac{1}{2}(m-7)].\end{aligned}$$

16969. (J. J. Barniville, B.A., I.C.S.)—Find the common factors of

(1) x^8-3x+2 and $x^{33}+67x^{11}-1$,

(2) $x^{14}+4x^5-1$, $x^{14}-4x+3$, and $x^{16}-7x^3+3$,

(3) x^4+x^2+x-1 and x^8+7x-4,

(4) $x^7+x^6+x^4-1$ and $x^{15}-2x^{13}-2x^4+1$,

(5) $x^{21}+x^{14}+7x^7-1$ and $x^{33}+x^{22}+22x^{11}-1$,

(6) $x^{20}+6x^{15}+5x^{10}-1$ and $x^{52}+66x^{39}+13x^{13}-1$.

Also (7) resolve $x^{12}-18x^6+1$, $x^{18}-x^{12}+10x^6-1$, and $x^{18}+2x^{12}+5x^6-1$, each into four rational factors.

16970. (D. Biddle.)—T_r is a number consisting of r digits, each $=1$; $r \not< 3$. N_r is a number, of form $6n\pm1$, also having r digits, whose sum $=s$, such that sT_r is divisible by r. When r is 3 or a power of 3, all values of s are available, within the limits, because T_r is then itself divisible by r; but, otherwise, s is limited to multiples of r (which excludes many numbers). However, let $sT_r/r = Q$. Then it is easy to produce instances in which $Q \sim N_r = \square$, unless N_r be prime. Many numbers which are not of form $6n\pm1$ respond. Thus, between 100 and 110, whilst 101, 103, 107, 109 refuse to respond, 102, 104, 108 do respond. 551, 559, 589, 1843 are other responsive numbers, being also of proper form. State the reasons for such response and the reverse; also the relation of the square to N_r in favourable cases.

16971. (C. M. Ross, B.A.)—If ω be a primitive n-th root of unity, show that $(1-\omega)(1-\omega^2)(1-\omega^3)\ldots(1-\omega^{n-1}) = n$.

16972. (The late Professor Cochez.)—α, β, γ étant racines de $x^3+px+q=0$, trouver la condition pour que

$$1/(3\alpha^2+p)+1/(3\beta^2+p)+1/(3\gamma^2+p),$$

soit racine de cette équation.

16973. (J. K. Heydon.)—$A_1A_2A_3\ldots$ is a regular polygon. B_1 is on A_1, B_2 is half way from B_1 to A_2, B_3 is one-third of the way from B_2 to A_3, and so on. To what curve do the B's approach as the number of A's increases indefinitely.

16974. (M. T. Naraniengar, M.A.)—In a cycloid, the generating circle cuts the curve at P, Q. Show that the inclination of PQ to the fixed straight line is equal to the angle between the tangents at P and Q to the cycloid.

16975. (Professor Nanson.)—Trace the curve

$$[a+x\pm\sqrt{(x^2-b^2)}][a+y\pm\sqrt{(y^2-b^2)}] = c^2.$$

16976. (V. Ramaswami Aiyar, M.A.)—If the tangent at any point P of a cardioide cut the curve again in Q and R, prove that the locus of the intersection of the tangents at Q and R is a hyperbola Γ.

16977. (Professor Neuberg.)—Soient MM′, NN′ deux diamètres rectangulaires d'une ellipse, μ et ν les angles sous lesquels on voit ces diamètres d'un point P de l'ellipse. Trouver (1) la relation entre μ et ν lorsque P parcourt la courbe, les diamètres MM′, NN′ restant fixes; (2) la relation entre μ et ν lorsque P est fixe et que les diamètres varient.

16978. (A. H. S. Gillson.)—Normals are drawn from a point P to a given parabola. Show that the locus of P is another parabola, if the orthocentre of the triangle formed by the feet of the normals always moves on the given parabola.

16979. (H. Bateman, B.A.)—If a conic of eccentricity e can be drawn to pass through two given points A, B, and touch elsewhere two circles which pass through these points, then an infinite number of such conics can be described. Show, in particular, that ∞^1 rectangular hyperbolas may be drawn to touch two equal circles and pass through their points of intersection.

16980. (A. E Jolliffe.)—Show that both foci of an ellipse lie outside the circle circumscribing a triangle formed by three tangents to the ellipse, unless the circle completely encloses the ellipse. State the corresponding theorem for the case of the hyperbola.

16981. (A. M. Nesbitt, M.A. Suggested by Question 16841.)—If circles having a common point cut a given join harmonically, they have a second common point.

16982. (Professor E. Hernández.)—α et α_1, β et β_1, γ et γ_1, étant les longueurs des perpendiculaires abaissées respectivement des sommets A, B, C, d'un triangle, sur les bissectrices intérieures des deux autres angles et α' et α_1', β' et β_1', γ' et γ_1' celles qui correspondent aux bissectrices des angles extérieures, on a

$$p^6 = (\alpha'\beta'\gamma'\alpha_1'\beta_1'\gamma_1')^2/\alpha\beta\gamma\alpha_1\beta_1\gamma_1,\quad S^6 = \alpha\beta\gamma\alpha_1\beta_1\gamma_1\alpha'\beta'\gamma'\alpha_1'\beta_1'\gamma_1',$$
$$r^6 = (\alpha\beta\gamma\alpha_1\beta_1\gamma_1)^2/\alpha'\beta'\gamma'\alpha_1'\beta_1'\gamma_1',$$

p, S, r étant le demi-perimètre, l'aire et le rayon du cercle inscrit dans le triangle.

16983. (Professor Nanson.)—If a transversal cut n of the radii drawn to $2n$ points uniformly distributed round a circle in the points $P_1, P_2, \ldots, P_n$, prove that $\Sigma P_rP_s^2 = (n-1)\,\Sigma OP_r^2$, where O is the centre.

16984. (W. F. Beard, M.A.)—OA, OB are two fixed straight lines, a circle through O cuts OA, OB at P, Q. CD is the diameter parallel to PQ. Show that OC, OD are fixed straight lines.

16985. (George C. Irwin.)—Show geometrically that, if $\theta < \pi/2n$,

$$\sin^2\theta = \cos^2 n\theta + \cos^2(n-1)\theta - 2\cos n\theta\cos(n-1)\theta\cos\theta.$$

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

13275. (Rev. J. Cullen, S.J.)—Find the conditions for an umbilic on the surface $\rho = \phi(x, y)$, where x and y are independent scalar variables, and ϕ a given vector function. Also show that these conditions are equivalent to $(1+p^2)/r = pq/s = (1+q^2)/t$.

13398. (W. J. Dobbs, M.A.)—Four fine light rods are freely jointed at their extremities to form a convex quadrilateral framework ABCD, which is stiffened by another fine light rod connecting B, D. A mass of weight W is suspended from B, and the whole system is supported with DB vertically downwards by vertical forces applied at A and C. Prove that, if T is the tension of the rod DB, and E the point where the straight line AC intersects BD, T : W = DE : DB.

13419. (W. S. B. Woolhouse, F.R.A.S.)—Find the equation of the surface locus of the foci of central sections of a given ellipsoid.

13513. (Morgan Brierley.) — Given a diagonal = 60, and the difference = 12, of the diameters of the frustum of a cone, to determine its contents a maximum.

13575. (The late Professor Sylvester, F.R.S.) — Show that in multiplying together two numbers the chances of the first figure in the product being 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 are as 4, 12, 4, 12, 9, 12, 4, 12, 4, 27 respectively.

13797. (W. E. Jeffares, B.A.) — Sum the following series to n terms and to infinity:—

$$\frac{19}{1.2.3}(\tfrac{1}{3})^2+\frac{28}{2.3.4}(\tfrac{1}{3})^3+\frac{39}{3.4.5}(\tfrac{1}{3})^4+\frac{54}{4.5.6}(\tfrac{1}{3})^5+\ldots.$$

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WINTER MEETING.

A Winter Meeting for Teachers will be held at the College in the second week of January, 1911. The meeting will open with an Address from Professor M. E. SADLER, and the Programme will include Lectures on Psychology in relation to Education, Class Management and Discipline, Methods of Teaching, &c., &c., and a Conversazione. Lectures will be delivered by Professors Adams, Adamson, Armstrong, Findlay, Lyde, Foster Watson, Mrs. Bryant, Mr. P. B. Ballard, Mr. H. E. Corke, Dr. H. H. Hulbert, Mr. M. W. Keatinge, Mr. J. L. Paton, Dr. J. W. Slaughter, and Miss C. von Wyss.

Members of the College are entitled to attend the Meeting free of charge, and members of other Associations of Teachers will be admitted on payment of half-fee.

Programmes may be obtained from the SECRETARY.

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The First Course of Lectures (Thirty-ninth Annual Series), by Prof. J. ADAMS, M.A., B.Sc., F.C.P., on "The Psychology essential to Efficient Work in Education," will commence on Thursday, February 2nd, at 7 p.m.

This Course will to a certain extent prepare for the Examinations of the College in connexion with the Associateship, the Licentiateship, and the Fellowship; but its main purpose will be to present the facts of Psychology in such a way as to enable the teacher to make use of them in the practical work of the School. The work will be so arranged as to give the students an opportunity of comparing the results of their experience with the latest results of psychological research into educational processes. The Lectures will be illustrated by frequent references to the work in all classes of Schools.

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Certificate Examinations.—The Midsummer Examination for Certificates will commence on the 27th of June, 1911.

Lower Forms Examinations. — The Midsummer Examination will commence on the 27th of June, 1911.

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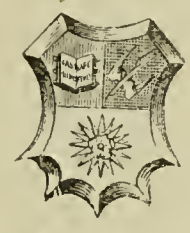

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CONTENTS.

Page
Leader: The Moral Education Congress 471
Notes 472
Public Grants to Private Schools—Suggestions for improvement in the work of the College of Preceptors—"The Tragedy of the Unemployed Certificated Teacher"—Mr. Askquith on Literary Style—The Premier on Great Ideals—Mr. Oscar Browning on Public School Education.
Summary of the Month 474
Universities and Schools 476
Oxford — Cambridge — London — Manchester—Hartley University College.
Assistant Masters' Conditions of Service 477
The Educational Ladder 477
Current Events 477
Fixtures — Honours — Endowments and Benefactions — Appointments and Vacancies—Scholarships—Literary Items—General.
The Dullness of Schoolmasters. By Prof. J. J. Findlay 480
Book-keeping, and How to Teach it: Lecture at the College of Preceptors. By J. Blake Harrold 485
The College of Preceptors:
Meeting of the Council 489
Reviews 490
Day and Evening Schools—their management and organization, with special reference to the Problems of Adolescent Education (Hayward); A New Algebra (Barnard and Child).
General Notices 491
Christmas Books, II 492
Mathematics 499

The Educational Times.

The Moral Education Congress.

"Uno avulso non deficit alter." The First International Moral Education Congress of 1908 has become a memory; but, before it is forgotten, its successor is preparing to claim a sympathetic attention from all who are interested in the most general of educational problems. The Second Congress is fixed for the summer of 1912, and a strong Committee representative of different ethical schools in Holland is now busily engaged in making the arrangements for a successful meeting at The Hague.

The appropriateness of the place for this particular purpose is fairly obvious. The seat of the international tribunal of arbitration and the home of a Temple of Peace, The Hague should harbour a *genius loci* very favourably disposed to a gathering which is as desirous to maintain and strengthen the comity of nations as it is zealous for the promotion of righteousness in the individual. Moreover, the pleasant Dutch town and its neighbourhood are not only easy of access from Western, Central, and Northern Europe, but also afford an interesting and agreeable holiday ground at the time of year—the end of August—when the Congress will be held.

But there is more significance than is implied in these advantages of mere situation in the choice of The Hague as the temporary home of an international assembly. The Dutch are honourably distinguished by their solicitude for the efficiency of their system of education and by the excellence of the instruction which is given in their schools. Yet, in common with most civilized nations of to-day, Holland is not entirely satisfied with the part which its schools are playing in the moral upbringing of the children who attend them. Opinion in this matter was concentrated recently by the institution of a Union for the Promotion of Children's Interests — a society which brought into association teachers, administrators, and persons whose connexion with education was not official. One of the first projects of the Union was the holding of a national conference on the moral aspects of education; and for this purpose it was essential that all who were consciously endeavouring to affect conduct through the ordinary educational channels should be requested to take part in the meeting. Those who have tried to bring about co-operation between the different labourers in this especial field will easily realize the difficulty of the task which faced the Union at this stage. Nevertheless, the difficulty was boldly met, and the result encouraged the Union to persevere.

At this point, a much greater task was proposed to the handful of men and women who were carrying on the Union's work. The International Executive Committee of the Moral Education Congress, in pursuance of the instructions delivered to it on its institution in 1908, was then making inquiries as to the most suitable place for holding the Second Congress in due course, and the result of these inquiries was that the Committee determined to recommend the holding of the Second Congress in Holland. It was, at the same time, suggested to the Union for the Promotion of Children's Interests that the immediate objective should be not a national conference in 1911, but an international one in 1912. The Union gallantly accepted the challenge and at once took steps to widen still further the basis of support on which the success of such a venture must depend. No doubt the determination of the International Committee greatly strengthened the hands of the Union; however that may be, it was found possible to unite denominationalists, undenominationalists, and those who preferred to regard morals apart from all religious forms in one working body for the good of an international meeting, in which the principles of the First Moral Education Congress should be observed.

It will be remembered that the essential principle of the London Congress of 1908 was that its deliberations should be limited to matters which equally interest all who value the ethical aspect in education; and this restriction was made expressly without assuming that religious and philosophical questions have no importance in moral education, and without excluding references to religions or philosophical standpoints in the course of debate. On this principle as a basis, it has proved possible to unite for common purposes Dutch Catholics, Calvinists, Positivists, Rationalists, and others. We understand that co-operation amongst men of such diverse beliefs has hitherto been ex-

tremely rare in Holland. If this be so, the Second Congress may be said to have scored a success in advance. Of course, everything depends upon the wisdom of the arrangements made to give effect to the principle of comprehension in the papers written for the Congress and in the speeches delivered on its platforms. The catholicity of the Dutch Committee's personnel, the experience of 1908, and the natural regard for the seriousness of the issues at stake which is entertained by all concerned are reasonable guarantees that wisdom will be forthcoming. Those responsible for the arrangements are doubtless alive to the fact that, should the Congress become the mere mouthpiece of a faction, or even refuse on the ground of its provenance a hearing to any well grounded plan of education, the international character of the gathering would be destroyed and its general usefulness would become impossible.

The official languages of the First Congress were English, French, and German; these will be retained at The Hague, with, of course, the addition of Dutch. But the knowledge of modern languages is so general amongst educated persons in Holland that ignorance of Dutch is not at all likely to stand in the way of the success of the conference. English, French, and German speakers may feel confident that they are understood by their audience.

We gather that the International Executive Committee hopes to lay before The Hague Congress a scheme for the institution of a Bureau of Moral Education, with the construction of which it was charged by the London Congress. The particulars of the plan are not available at present; but we assume that the proposed Bureau will be international in scope and that its chief function will be to disseminate information of what is being done in the interests of moral education. The value of such a clearing-house of ideas is generally recognized in all forms of scientific and social work, and we cannot but believe that the establishment of an International Bureau of Moral Education would prove of the greatest service to educators and educational administrators everywhere. The wholesale adoption, or attempted adoption, of the plans of one country by another is a grave mistake into which modern conditions of life tend to seduce even the observant and thoughtful when they rely upon insufficient information. The fuller knowledge which this Bureau could supply would save men from this capital error, while it would enable them to profit by the adaptation of such foreign principles as would readily find a new home.

We understand that the chief difficulty is that of finance. We would fain believe that this will cease to be a difficulty, when a few wealthy men and women become aware of the opportunity for rendering mankind a signal service.

NOTES.

There will be very general agreement with the declaration of the rights of private schools that appears in the report of the Education Committee to the Council of the College of Preceptors, but it is somewhat difficult to make a practical application. The Local Education Authorities are already in a position to make money grants to private schools; and, though the Board of Education regulations do not permit of an Imperial grant, these regulations are the work of the Board itself and can be easily altered. The question remains whether it is desirable to press for such grants. The moment a private school receives a public grant it logically ceases to be a private school, as it is thenceforth under State control. But we are not a logical people, and the mere name need not greatly concern us. The important point is that there does not appear to be a great desire for grants among the private schools that are in a position to claim public recognition. The College of Preceptors Committee are probably right in their recommendation to delay making claims for grants of public money till we are sure that there is a real demand for such grants. Cases have been brought to the notice of that Committee in which the acceptance of a public grant, with its conditions, has involved such a diminution of social prestige as has resulted in a financial loss. It is pleasant to find that there are some private schools so efficient educationally as to claim recognition by the Board of Education, and so strong financially as to be able to refuse grants of public money. Such schools are of incalculable service to the community. They allow a freer development of individuality than is possible under any system of Government control. They do pioneer work in the way of meeting the changing conditions under which education is carried on. They allow the influence of the parent to have some scope, and are yet strong enough to regulate that influence as it ought to be regulated. So soon as such schools come under the Board of Education, they lose their specific character, and must come into line with those in the system. It may be asked why such strong schools should claim public recognition at all. There are at least two reasons. As the report states, the Board of Education's recognition is the most obvious (the report does not say "the best") evidence of efficiency. Then this recognition removes certain disabilities from the pupils of non-recognized schools in the matter of competing for, and holding, various scholarships. For the second reason alone some rather important schools have sought, and obtained, recognition. Every efficient private school should seek recognition. This would strengthen its position and give added weight to the protest implied in refusing the grant, if that policy is decided to be the best. In the meantime, it is good policy to delay agitation for public grants till there is evidence that there is a desire for them among the "recognized" private schools.

With a view to maintain, and if possible to increase, its efficiency, the College of Preceptors recently invited its members to send in suggestions for improvements. The great majority of the suggestions sent in had been previously considered by the Council in its various Committees, but the circular has had the excellent effect of stirring up interest among the members. One of the most practical of the suggestions is the recommendation to make more use of the very handsome and convenient buildings. Up till now, any six members, by signing a requisition, could obtain the use of a room for a meeting, and under the new scheme four signatories will be enough. It will be interesting to watch what advantage is taken of this extension of privilege. The proposal to start branches of the College at provincial

centres is favourably regarded by the Council, but it is not very hopeful about the chances of development in this direction. Would it not be possible for some of the provincial members to come forward with a proposal for a branch in their own district? The suggestion of a Provident Fund has been carefully considered, and statistics have been prepared by practical men familiar with this class of business. The result is that it has been demonstrated that such a scheme must result in a certain loss which could not be counterbalanced by any increase of membership. A number of members emphasized the need to bring into greater prominence the interests of the private schools, and, as a result, it has been resolved to appoint a Legal and Parliamentary Committee, whose business will be to watch over the interests of all the members and to keep a special look-out on all matters in which Educational Authorities of any sort are concerned. Among the other suggestions were many of interest—among them, the proposals to establish a club-house, to improve the college gown, and to establish a college blazer; but the only one that promises much is the idea of, in some way or other, bringing ourselves into alliance with other bodies of teachers. In the meantime, matters have not yet crystallized out, but there are many suggestions floating about, and the Council will do well to keep a benevolently observant eye upon them all.

"THE Tragedy of the Unemployed (College-trained Certificated) Teacher," issued by the Joint Council of ex-students of Training Colleges for Teachers, is a pamphlet of very painful reading in these days of enthusiasm for educational progress and efficiency. From it we learn that "half the children in the nation's schools are taught by unqualified and often quite incompetent teachers"; that "one great army of teachers, 15,000 strong, have no other qualifications than that they are over eighteen years of age and are vaccinated," while "another army of 50,000 do not possess the Government Certificate"; that of the remainder of the 160,000 only 50,000 are college-trained, and 44,000 are non-collegiate; and that, in face of these conditions, many hundreds of college-trained certificated teachers are out of work and scrambling for any chance job to save them from dependence on others, if not from starvation. There has been grievous miscalculation somewhere. The remedies proposed are these four: (1) the adequate control of the supply and demand by the Board of Education; (2) the elimination of the unqualified and the unfit by the Board of Education; (3) reduction of the size of classes; and (4) the distribution of the output from the training colleges throughout the year. There is much reason in all these suggestions. "Our cause," says the pamphlet, "is the nation's cause. We appeal for the broad view. The fear that this country has of being out-distanced in the civilized world by Germany may not at all be an unfounded fear. But it is not the Dreadnoughts we should be so much afraid of, it is the German schools. If we are to go to the wall, it will be the German schools and the German schoolmasters that will defeat us, and not the ironclads." We have said as much ourselves before now, and we are not sorry to have an opportunity of repeating it.

THE *Irish School Weekly* has been insistent in drawing attention to the necessity of training the untrained teacher. The old farce of examination, under which nineteen out of twenty candidates were rejected, has gone, and now there is a two years' course for all students. "It has, however, been recently brought under our notice," says our contemporary, "that, while a large number of first-division candidates had necessarily to be rejected, those from lower divisions were admitted"; and, "if our information is correct, the whole matter savours of favouritism and demands investigation." The Board allows the colleges *carte blanche* in the selection; "but, while there are nnmbers in the first division to select from, it requires some ability to justify admission from the lower divisions." Meantime, there still remain 4,345 teachers untrained, and it seems very reasonable to urge that the process should be expedited. The Board has notified the colleges that it possesses the power of retaining a certain number of places in the colleges for existing teachers that are untrained, and our contemporary urges the Board to exercise this power to a liberal extent, "to prevent injustice in the way of increment, promotion, and pensions to existing teachers."

"A VAST deal of the slipshod and prolix stuff which we are compelled to read or to listen to," said the Prime Minister in his Rectorial Address to the Aberdeen students, "is, of course, born of sheer idleness." Idleness may be taken to include inattention to the matter; and many people think that, because they speak English, it is quite unnecessary to make a study of the mechanism of the language and of its practical working. Fortunately, Mr. Asquith is no longer alone in the opinion that "it ought to be regarded as one of the serious functions of a University to inculcate the importance and to cultivate the practice of style"; though, perhaps, systematic and critical practice has not yet reached the zenith of development. "Remember," he said, "that in the English language we have received as part of our common inheritance the richest and most flexible organ of expression among living tongues." But the possession of an organ is of little use unless one has learned to manage it. The man that wants to write or speak English will go to the great authors again and again, "not to echo their cadences or to mimic their mannerisms, not merely to enrich his own vocabulary, but to study the secret of their music; to learn how it is that, with them, language becomes the mirror of thought; to master, step by step, the processes by which these cunning artificers in words forge out of them phrases, sentences, paragraphs, and give to each its proper place and function in the structure of an immortal work." The foundations of this practice must be well and truly laid in the pre-University schools.

MR. ASQUITH, speaking broadly on culture, and not minimizing the importance of special stndies, advanced a plea for the old academic ideal of the all-round man, "not the superficial smatterer who knows something about everything and mnch about nothing, but one who has not sacrificed to the pursuit of a single dominating interest his breadth of outlook, the zest and range of his intellectual curiosity,

his eagerness to know and to assimilate the best that has been and is being thought and written and said about all things that either contribute to the knowledge or enrich the life of man." There is something of the hard saying in this; but it is, substantially, a worthy ideal, however difficult it may be to strike the golden mean in practice. Mr. Asquith's final counsel, elevated and inspiring, will, it may be hoped, stick like a burr in the minds of his young hearers and others: "Keep always with you, wherever your course may be, the best and most enduring gift that a University can bestow—the company of great thoughts, the inspiration of great ideals, the example of great achievements, the consolation of great failures. So equipped, you can face, without perturbation, the buffets of circumstance, the caprice of fortune, the inscrutable vicissitudes of life."

Mr. Oscar Browning, in his larger freedom, has been discussing with the Parents' National Educational Union the fundamental and pregnant question: "Is education of any use?" After a life spent in being educated and in educating, one is not easily determined to a negative conclusion. Mr. Browning, at any rate, stands up for the fullest possible extent of home education. But, when it comes to public boarding schools, he draws the line severely; he does not believe in them; so far from being nurseries of English character—which is their most flaming certificate—they are exactly the reverse. And every year they are getting worse. Indeed, they are entirely beyond remedy. Still, we cannot do without them. What, then, is to be done? One thing would be to make the public school as much as possible like the home. We should not have supposed that things were so unsatisfactory; and it is just possible that Mr. Browning's apprehension and interpretation of the facts may be open to criticism.

SUMMARY OF THE MONTH.

At the meeting of the Education Committee of the London County Council on October 26 the question of the senior scholarships awarded by the Council was under discussion. It was eventually decided to increase the number of these scholarships in 1912. Just as it was necessary to increase the number of intermediate scholarships in 1910, when the first batch of junior scholars attained the age of sixteen, so it will be necessary to increase the number of senior scholarships in 1912, when the same candidates reach the age of eighteen. The number of senior scholarships available for competition at present is 50; in 1912 it will be 100. The standard required for the award of these senior county scholarships is, however, not to be lowered in any way. It is estimated that the annual cost of awarding 100 of these scholarships will be £20,000. In the award of senior county scholarships the Council has regard, in the first instance, to the past achievements of the candidates and to the reports of the teachers under whom they have worked and of other responsible persons acquainted with the candidates, and such reports must have reference to the character and qualifications of the applicants as well as their scholastic attainments. The scholarships consist of a maintenance grant not exceeding £90 a year. This amount is in each case determined after consideration of the requirements and the financial circumstances of the candidate. Senior county scholarships are, as a rule, tenable for a length of time necessary for a student to take an honours degree in the subject selected, provided that this period is not more than four years. When the scholarship has been held for four years, the Council may, in a limited number of cases, continue the scholarship for a fifth year if satisfied that there are exceptional circumstances which render such further continuance desirable. At present the income of the parents or guardians of a scholarship holder must not exceed £400 a year. A proposal to abolish this limit was referred back to the Higher Education Sub-Committee for further consideration.

Sir William Collins, M.P., presiding at the annual distribution of prizes by Lady Collins at the County Secondary School for Girls in Crowndale Road, St. Pancras, alluded to the fact that that excellent school had only temporary accommodation at the Working Men's College, but said that before Lady Day next, commencement would be made with the new North-West Polytechnic, which had long been needed. The North-West of London had been seriously neglected in the matter of Polytechnics. That school was not the only educational institution with a temporary home. The University of London had long been in a similar position, but he was glad to see, among the numerous suggestions for a memorial to the late King Edward, one that there might be established an efficient and adequate building for the University of London, worthy of London and worthy of education. Remembering that London was the capital of the Empire, and that the University did work not only for London but for the Empire, he did not think that there could be a more worthy memorial to the late King. Referring to a remark by Miss Bartram, Head Mistress, in her report as to the prevalence of an idea that secondary schools were "finishing" schools for girls from the elementary schools, which she emphatically denied, Sir William said that people had doubts as to what a secondary school was. It was, perhaps, not easy to determine. The Board of Education, which was composed of outrageously clever people, had framed a definition of their own, but if they could not frame a plainer definition humbler people might be pardoned for their attempts. He hoped that the scholars would never regard that as a "finishing" school or think that their education was ever finished. He trusted that they would continue as students or scholars throughout life, and that if they became teachers they would realize that it was always necessary to be adding to their knowledge while imparting it to others. With regard to the unemployed teachers, he thought those things ought to be regulated with a little more discretion, and that there ought to be due regulation between supply and demand so that they would not see what they had seen, teachers educated at the expense of the State who were not able to find employment for which they had qualified themselves.

The sixth annual meeting of the Association of Teachers in Technical Institutions, was held at the Northern Polytechnic, Holloway Road, under the presidency of Mr. J. Wilson (Battersea Polytechnic). The Council reported considerable growth in the strength of the Association, coupled with expansion in its work and influence. The publication of the evidence already given before the Royal Commission on London University had made evident the determined efforts that were being made to limit the scope and activities of the London Polytechnics, an attack which, if successful, could not fail to be reflected to a greater or less degree in the provinces. This movement must be carefully watched, and evidence had been prepared which it was proposed to submit to the Commission on behalf of the Association. Pleasure was expressed at the fact that the Board of Education had recently announced their intention to issue at an early date regulations making provision for a number of reforms repeatedly urged, among them such matters as the increased co-ordination of continuation schools and the provision of organized day continuation schools. The President said the Association had steadily kept before the public the necessity for such fundamental reforms as (1) elementary school education to be more practical or constructive and less "bookish"; (2) compulsory attendance at day or evening continuation schools, with a limitation of the hours of labour of adolescents; (3) the institution of technical secondary schools, including specialized trade schools; (4) the linking up of the elementary schools through the continuation and secondary school to the technical school; (5) increased provision of scholarships with maintenance grants, so that the qualified day or evening student, however limited his means, might receive the highest possible technical training the com-

munity could supply. Mr. Barker North (Bradford Technical College) was elected President for the ensuing year.

At a meeting of the General Committee on Industrial Training, composed of representatives of the Corporation, the Guilds, and the proposed National Industrial Education League, held at the Mansion House (November 2), many of the principal industries were represented by employers, workers, members of the City Guilds, of the Corporation, and of Educational Associations. The Lord Mayor, who presided, expressed his hearty sympathy with the movement for national industrial training, to which he had for some time past endeavoured to give practical effect and should continue to give his hearty support. He wished those present every success in their endeavours to carry out the purpose for which they met, which was for preparing a program and making the necessary arrangements for a national conference at the Guildhall. It was decided to proceed with the collection of the Fund proposed by the Lord Mayor in July last to defray the initial expenses of the movement and to provide for the calling of the conference. A Sub-Committee was appointed to prepare proposals for the consideration of the General Committee, to include the date of the conference, the issuing of the invitations, and a program of the proceedings, with such resolutions as may be considered necessary for promoting the object in view.

At York House, Twickenham, the residence of Mr. and Mrs. Ratan Tata, a large and distinguished company, consisting largely of Indians and Anglo-Indians, attended (November 16) to hear a Demonstration Moral Lesson to a class of children drawn from a Twickenham elementary school by Mr. F. J. Gould, Lecturer and Demonstrator of the Moral Education League. Lady Downes presided. The lesson, which was followed with great interest, was designed to draw attention to the work the Moral Education League had been endeavouring to do for education in India. Two years ago the Indian State of Mysore introduced, as a result of the League's propaganda, religious and moral instruction into all its Government schools; some action in the same direction was shortly afterwards taken by the Baroda State; and interest in the question has now been awakened throughout the whole of India. In order to promote the movement in India, the League had been engaged for two years now in compiling a book of Moral Lessons for use in schools and families in India. Those who desire to see the booklet may obtain it by applying to the Secretary, 6 York Buildings, Adelphi, W.C.

At the annual general meeting of the Secondary Education Association of Scotland, held at Glasgow University, it was reported that the membership of the branches was as follows: Glasgow, 420; St. Andrews, 197; Aberdeen, 158; Edinburgh, 400—total, 1,175 (or, including 30 honorary members, 1,205), an increase in all the branches except Glasgow, and a net increase for the year of 117. During the year a conference on the question of federation with kindred Associations had been held in accordance with a resolution adopted at last annual meeting. The Councils of the Modern Language and the English Associations had accepted the invitation to confer, but the Classical Association had declined on the ground that if it united itself too closely with an Association composed exclusively of teachers it would probably lose most of those members who were connected with other professions, and, if deprived of them, would lose also a great measure of its distinctive influence. The representatives of each of the three Associations who took part in the Conference agreed to recommend to their respective bodies that, along with the other two Associations represented at the Conference, they should have one common meeting every year and co-operation with regard to subjects and dates of the syllabuses of the three Associations. The representatives at the Conference expressed themselves with more or less emphasis in favour of federation. On the other hand, they were equally unanimous in stating that such federation should do nothing to lessen their freedom or independence. The reports were adopted.

At a public meeting called by the Association of Secondary Teachers, and held in the Mansion House, Dublin, the establishment of a regular profession of secondary teachers in Ireland was considered. The Very Rev. P. Cullen proposed a resolution calling on the Government to make adequate provision for intermediate education in Ireland, and to place the grant for the purpose on the yearly Estimates, so that it might be possible to discuss the subject in the House of Commons. He said that the Intermediate Board grant suffered by the diminution of the local taxation account. In ten years there had been a falling off of over £55,000, and that sum must further decrease, because, as temperance gained ground, the whisky tax became less. The educational revenue from whisky was nearly dried up. It was rumoured that a new Bill was in preparation, which next year might see the light of day; if such a Bill was being prepared, they asked that the heads of schools and teachers might have something to say to it. Mr. Clancy, M.P., seconded the resolution, which was passed.

Prof. Culverwell, Fellow of Trinity College, moved a resolution expressing the opinion that a regular profession of secondary teachers, with adequate salaries and pensions, should be immediately established in Ireland, and that this should be made an integral part of any new arrangements for Irish intermediate education. The resolution was supported by Dr. Coffey, President of University College, Dublin, and by Mr. Dillon, M.P., who referred to various ways in which the position of the teachers had been deplorably neglected. The resolution was carried unanimously, as was another calling on the Irish members of Parliament to support the demands of the secondary teachers.

The *Electrical Review* (October 21) directs attention to the great falling off in attendance at the evening classes of our technical schools which occurs during the course of each winter session. It contrasts the eagerness of the prospective student in consulting the teachers as to his course, in buying the textbooks, and in making all his arrangements for strenuous work during the forthcoming winter evenings, with his tired and weary look and his vain attempt to follow the explanations given by his class teacher three months later. For this change, sheer fatigue and inability to stand the strain of perpetual day and evening work are responsible, and the *Review* charges the evening-school authorities with attempting too much and demanding attendance on the part of students for four or five evenings per week. It points out that undue strain can only be prevented by a reduction of the evenings of attendance to two, or in exceptional cases to three, per week, and urges the Authorities to take this step as a means of improving both day and evening work of the students who attend their evening classes.

In his report on education in Cape Colony in 1909, Dr. Muir points out that in 1891 there were five colleges in the colony where students could pursue courses of study for a University degree—the South African College, Cape Town; the Diocesan College, Rondebosch; the Victoria College, Stellenbosch; St. Andrew's College, Grahamstown; and the Gill College, Somerset East. A large proportion of the teaching power, however, in all these institutions was given to what was, properly speaking, school work, namely, the preparation of large classes for matriculation. Mathematics and chemistry, too, were the only sciences for the teaching of which provision was made. From its inauguration the policy pursued by the Education Department kept three aims in view. The first was the removal of the matriculation classes from the colleges, so that professors might have more time for advanced work, while the pupils of the junior classes might, in the public schools, be under a discipline more suitable to their years. The second was the institution of new professorships, more especially in the sciences, until then unrepresented; and the third was a reduction in the number of colleges—a number which seemed at the time excessive for the total number of students. Victoria College, Stellenbosch, was the first that agreed to part with its matriculation classes, the junior class in 1896 and the senior in 1899. In the latter year the South African College was induced to follow the example. At present practically all the colleges have ceased to retain matriculation classes. Since 1891 there have been instituted in connexion with the colleges professorships of physics, applied mathematics, geology, botany, and zoology. In addition to the then existing courses in arts, law, and survey, there have been opened

new courses in arts, as well as professional courses in mining, civil and electrical engineering, medicine (preliminary), and forestry. On the literature side there has also been development, professorships in history and lectureships in Hebrew having been established in connexion with the larger colleges. The movement towards greater concentration of effort in fewer colleges has been brought to a successful issue in the eastern province. The Gill College, Somerset East, has been closed, St. Andrew's College has restricted itself to school work, and in Grahamstown, by the happy union of all interests, the Rhodes University College has taken their places and become the centre of higher education for the eastern province.

UNIVERSITIES AND COLLEGES.

Oxford. In a Convocation (November 1), the statute establishing a Delegacy for Women Students, which was approved by Congregation on June 14, was passed without opposition. The effect of the statute is to give the new Delegacy (which will include the Principal of the Society of Oxford Home Students and eight other women) control over resident women students working for examinations in Arts and Music. A register of the names of all such students will be sent to the Delegates by the governing body of any recognized society of women students, and the Oxford home students, who are now more numerous than the members of any of the women's colleges or halls, will be under the University Delegacy. The Delegacy will also take over, after March next, that part of the work of the Local Examinations Delegacy which has to do with the admission of women to University examinations in Arts and Music. A decree was also passed recognizing Lady Margaret Hall, Somerville College, St. Hugh's Hall, and St. Hilda's Hall, and admitting them to the privileges of the statute; and by a further decree it was provided that Mrs. Arthur Johnson should continue to be Principal of the Society of Oxford Home Students until January 1, 1916, and should be eligible for re-election.

After some severe criticism by the Warden of All Souls and Dr. Holland, the preamble of the statute reconstituting the Boards of Faculties, creating a General Board of Faculties, and instituting a new class of University lecturers and demonstrators, was promulgated in Congregation by 155 to 73 votes. There was a very large attendance. The President of Magdalen (Dr. T. Herbert Warren), in commending to the House the adoption of the statute, said it was an item in a large program. It was intended to be the beginning of a new development. He pointed out that the object of the General Board was threefold. It was to act as a regularizer, supervisor, and advisor of the subordinate Boards; it was also to replace the delegates of the Common University Fund.

(From our own Correspondent.)

Cambridge. Like the rest of the country, Cambridge is in the throes of a constitutional crisis. At the moment of writing the controversy is raging between the Reformers and the Moderates, and before these notes see the light the Senate will have come to a momentous decision. Curiously enough, the Reform party here wish to establish a bi-cameral system, while depriving the popular body, the Senate, of all save a few trifling powers on appeal from the projected House of Residents. The real object of the Reformers is to exclude the non-residents from active participation in the government of the University; but it seems to some of us that this is an unfortunate time to make the effort, as the greater public outside, of whom our non-resident M.A.'s are very fairly representative, must necessarily before long dictate the terms on which the University can enjoy the confidence of the country.

The voting on the Reform Graces resulted as follows:—Placets, 349; Non-Placets, 242.

Mr. T. F. C. Huddleston, the champion of the Moderates, points out with much force that to deprive the ordinary M.A. of his vote is at least a breach of faith; "compounding" has always been encouraged. He quotes from a leaflet published in 1908 by the University Association, in which Bachelors were encouraged to take their M.A. degree so as to obtain a voice in the government of the University. During the past year the fees for Compounders alone reached the amount of £3,000, and the total of the whole Compounders' Fund will shortly reach about £60,000. It is hardly too much to say that the contributors to this fund will have a cause of complaint if the new proposals are carried.

Sir Harold Harmsworth has most generously offered the University £20,000 to found a new Professorship of English Literature. "The Professor shall treat this subject on literary and critical rather than on philological and linguistic lines." The words quoted are from Sir Harold's letter, as also are the following: "All appointments to the said Professorship shall be made by the Crown." Mr. McTaggart raises a technical objection, namely, that certain notices must be given to the Senate before a new professorship is founded. Quite so; but there is no law against our accepting such splendid generosity and establishing the Chair as soon as red tape will let us. Mr. McTaggart also objects to the mode of appointment; but it is better to acquiesce in the prescribed mode than not to have the Professorship at all.

The Drapers' Company have selected Mr. T. G. Jackson as the architect for the new Physiological Laboratory which they are going to erect for us at a cost of £22,000.

The prestige of the Local Examinations will not suffer in the hands of the new Secretary, Mr. Flather. A successor to Mr. Flather in the Assistant Secretaryship will shortly be appointed by the Syndicate.

The postponed gaieties of the May week have enlivened what otherwise would have been an unusually dull term. The ball given by the Hawks Club was, as usual, a pronounced success, and the County function brought together all the notable personages within a radius of several miles. It is curious to notice the changed attitude of the authorities to these frivolities. Now that most of the College and University officials are married men the claims of the gentler sex are insistent and irresistible. They rule tactfully.

The river in the October term is always interesting, showing us future blues in the making. There seems to be a more abundant supply of raw material than usual. Mr. J. B. Rosher, the President, is embarrassed with riches in the construction of historical eights, having at least three capable strokes at his disposal—Colin Stuart, S. E. Swann, and R. Arbuthnot. The first two mentioned rowed in the final for the Colquhoun Sculls, and, after a fast and pluckily rowed race, Swann beat his friend by a bare half-length in the excellent time of 7 min. 57 sec., or, as some say, 7 min. 59 sec. Swann, who has lately taken to sculling, is the son of the Rev. Sidney Swann, who, twenty-five years ago, won the Colquhouns himself. The father paid a flying visit to Cambridge to coach his son during the race, and was rewarded for his long journey by seeing two sound sportsmen row a desperate race and the best man win.

The Rugby football side are shaping well. Fraser, the captain, is playing magnificently, and is training the forwards to follow his example. As some of our men who are quite unlikely to get their "blues" are being fancied for International honours, our case against Oxford is not so desperate as some think.

London. An important scheme for erecting a chemical laboratory for University College, at an estimated cost of £45,000, was outlined at a meeting of the St. Pancras Borough Council (November 9), when Sir Edward Busk, Vice-Chairman of the Committee of the College, headed a deputation from that institution with reference to an application for the closing of Little Gower Place, "if, and when, the site is cleared for the purpose of extending the college buildings." Sir Edward Busk said that the college authorities had acquired an option on the property (forty-one houses) in Little Gower Place and Gower Place, leading from Endsleigh Gardens, and it was proposed to erect on the ground now occupied by twenty-two houses in Little Gower Place, and on the site of the property in Gower Place, a chemical laboratory which would abut on the college. Before taking up their option the college authorities desired to know if they could count upon the sympathy and help of the Council in their endeavour to obtain a magisterial order to close Little Gower Place, the present roadway of which would be retained as an open space. They were not asking the Council to give it to them. They would simply enclose it. No provision had been made for the rehousing of the inhabitants displaced by the proposal. It was decided to refer the matter to the Highways and Parliamentary Committee.

Manchester. The new wing of the Hall of Residence for Women Students at The Oaks, Fallowfield, was opened formally (October 22) by Miss Penrose, Principal of Somerville College, Oxford, who explained the

great advantage of such halls for the students. The Vice-Chancellor of the University also expressed his conviction of the usefulness, and even the necessity, of them. The new building was designed by Mr. P. S. Worthington. It is ultimately to be connected with the older house by a central block. At present the Hall can receive sixty-two students; when completed it will receive seventy-five. Between the Hall and the Victoria Church Hostel there are now not more than five women students in lodgings. Unfortunately there is a large debt on the new block, and the completion of the scheme will be delayed till this is cleared off.

Southampton—Hartley.

The following bodies have passed resolutions expressing the opinion that the status of Hartley University College should be maintained:—The Chamber of Commerce, representing the whole of the shipping and trading interests of the town and port; the Southampton Medical Society and the local branch of the Medical Association, representing the medical profession in the town and district; the Hampshire Law Society, representing the legal profession in the town and district; the Governors of the Endowed Schools, representing the secondary schools of the town under public control. Such expressions of opinion from representative bodies clearly show that the college is primarily a Southampton and Hampshire institution, and it is to the County Councils of those localities that the college must necessarily look for its main support for maintenance.

ASSISTANT MASTERS' CONDITIONS OF SERVICE.

The following statement, signed by the Chairman of the Assistant Masters' Association (Mr. Fred. Charles), has been sent to the Secretaries of Education Committees throughout the country for circulation among the members of their committees, and to the Secretaries of the Head Masters' Conference, the Head Masters' Association, and the Private Schools Association for distribution to the members of their respective Councils:—

This Association has recently conducted an inquiry into the conditions of service of teachers in English and foreign secondary schools. The results show that, with respect to tenure, salaries, and pensions, teachers in English secondary schools are much less favourably situated than those in the schools of other countries. How inadequate this statement is can be realized from returns just obtained from English Local Educational Authorities. Sixty-two have salary scales.

The initial salary is, under 6 Authorities, £100 or less; under 37, £101 to £130; under 15, £131 to £150; under 4, over £150. The annual increments are, under 6 Authorities, £5 or less; under 25, over £5 and under £10; under 31, £10 or over. The final salary is, under 41 Authorities, £200 or under; under 18, £201 to £250; under 2, £251 to £300; under 1, over £300.

The salaries of State *Oberlehrer* in the largest German States, which together contain more than three-quarters of the population of Germany, are: Prussia, initial salary, £135, 4th year £170, 7th year £205, 10th year £240, 13th year £270, 16th year £300, 19th year £330, 22nd year £360. Bavaria (1), initial salary £240, 4th year £265, 7th year £290, 10th year £315, 13th year £340, 16th year £360; Bavaria (2), initial salary £150, 4th year £175, 7th year £200, 10th year £225, 13th year £250, 16th year £275, 19th year £300. Saxony (1), initial salary £180, 4th year £210, 7th year £240, 10th year £270, 13th year £300, 16th year £330, 19th year £360; Saxony (2), initial salary £180, 4th year £205, 7th year £230, 10th year £255, 13th year £280, 16th year £305, 19th year £330.

In no German State is the initial salary less than £100; in three only is it less than £130; and in one of these there are two scales, one beginning at £125, the other at £150. In no German State is the final salary less than £250, and in all but one it is well over £300; thus 59 of the 62 English Educational Authorities are paying salaries on a lower rate than any German town or State.

Now, I venture to draw two or three comparisons. There is a nearer approach to equality between the scales of London and Berlin than those of any other corresponding towns. The advantage is with Berlin; the salaries of all the *Oberlehrer* rise automatically to £360, plus rent allowance, which varies from £60 to £28, while in London comparatively few men can hope to reach £350. Liverpool and Hamburg present a greater contrast. The initial salaries are £150 and £200 respectively. Liverpool has no regular increments; those at Hamburg are equivalent to at least £10 a year. At Liverpool probably very few teachers are in receipt of £400 a year; while at Hamburg the salaries of an *Oberlehrer* rise automatically to £450.

One other example: Bristol, initial salary, £130; average annual increments, £10; final salary, £170. Bremen, initial salary, £200; average annual increments, £10; final salary, £390.

Five or six English Education Authorities make arrangements for the superannuation of their teachers, but require a contribution from them. Every German State provides pensions of from 75 to 100 per cent. of the last salary, and about half the States—not the largest ones—exact contributions.

You will, I think, agree that the present conditions in this country militate against efficient education in two ways. They do not attract into the teaching profession a sufficient number of capable and suitable men, and they do not enable the teachers already in the schools to do their best work. And, further, conditions that adversely affect the schools militate against national efficiency.

THE EDUCATIONAL LADDER.

Aberdeen University.—Fullerton Scholarship in Classics, £100 for two years: Herbert J. M. Milne.

Birmingham University.—Walter Myers Travelling Scholarship: Cranston Walker, B.Sc.

British Institution Scholarship Fund.—Scholarships of £50 a year for 2 years: in Painting, G. L. Brockhurst and L. L. Swain, Royal Academy Schools; in Sculpture, Gilbert Ledward, Royal College of Art; in Engraving, Dorothy E. G. Woollard, Bristol School of Art. Scholarships renewed for one year: N. A. Trent and Alfred C. S. Anderson.

Cambridge University. — Bhaonagar Medal: H. F. Dunkley, B.A., St. John's. Charles Oldham Shakespeare Scholarship: Richard Farrar Patterson, B.A., St. John's. *Proxime accessit* Francis Frederick Locker Birrell, King's. Honourably mentioned, Stanley Grocock, B.A., Queens', and William Edward Womersley, St. Catharine's.

Christ's.—Senior Fellowship: Rev. A. V. Valentine-Richards, M.A., Dean and Junior Fellow.

Clare.—Fellowship (Natural Science): H. Thirkill, B.A., formerly Scholar of the College.

Gonville and Caius.—Fellowship (Drosier): W. A. R. Wilks, B.A.

Pembroke.—Fellowship (Classics and History): A. A. Seaton, Lightfoot Scholar.

St. John's.—Fellowships: A. Wolf, M.A., Assistant Professor of Philosophy and Fellow, University College, London; H. R. Hassé, M.A., Lecturer in Mathematics, University of Manchester; and A. G. Campbell, B.A., Lecturer in Classics and Philosophy, University College, Reading.

Manchester University.—Wellington Scholarship: H. G. Meecham.—Shuttleworth Scholarship: G. W. Daniels and H. Dearnaley, B.A., equal.—Rumney Scholarship: H. L. Milner.—Junior Platt Exhibition: F. A. Bearn, and H. F. Hutchinson, equal. Platt Biological Scholarship: Sidney Garside.

Newcastle-on-Tyne: Armstrong College. — Johnston Chemical Scholarship: E. M. Taylor, B.Sc.

Oxford University. — Hebrew Scholarships: Junior Kennicott, S. H. Hooke, B.A., Jesus; Pusey and Ellerton, H. Danby, Scholar of Keble, and J. Orman, Scholar of Lincoln; *proxime accessit* C. E. Spencer. St. John's.—Craven Fellowship: Philip Newbold, B.A., Oriel.—Derby Scholarship: Eric Arthur Barber, B.A., Fellow of Merton, sometime Scholar of New College.—Studentship at the British School at Athens: Edward S. G. Robinson, B.A., Scholar of Christ Church.—Naples Biological Scholarship: G. C. Robson, M.A., formerly Exhibitioner of New College.—Eldon Law Scholarship: Patrick Houston Shaw-Stewart, B.A., Fellow of All Souls.

All Souls.—Fellowships: J. D. Henderson Radcliffe, B.A., and P. H. Shaw-Stewart, B.A., both of Balliol.

Magdalen.—Fellowship: L. W. Hunter, B.A., New College.

Wales, University of.—Fellowship, £250 a year for 3 years: Watkin Morgan, B.A. Mr. Morgan has just resigned the Senior Modern Language Mastership at the Municipal Secondary School, Cardiff.

CURRENT EVENTS.

Fixtures.

An attractive programme has been prepared for those attending the Winter Meeting for Teachers at the College of Preceptors on January 10–14, 1911.

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Prof. Sadler will speak at the opening meeting, and lectures will be delivered by Prof. Adams, Prof. Adamson, Prof. Armstrong, Mrs. P. B. Ballard, Mrs. Bryant, Prof.

Findlay, Dr. Hulbert, Mr. M. W. Keatinge, Prof. Lyde, Mr. J. L. Paton, Dr. J. W. Slaughter, Prof. Foster Watson, and Miss von Wyss. Mr. H. E. Corke will give a lantern lecture on "English Wild Flowers."

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THERE will be a Conversazione at the College on January 13 for members of the College and teachers attending the Winter Meeting.

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THE General Meeting of the members of the College will be held on January 21, 1911.

Honours.

LORD ROSEBERY has been elected Lord Rector of the University of St. Andrews without opposition.

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IT is officially announced that the King has approved the following awards this year by the President and Council of the Royal Society:—Royal Medal: Prof. Frederick O. Bower, F.R.S., for his treatise on the origin of land flora.—Royal Medal: Prof. John Joly, F.R.S., for researches in physics and geology. — The Copley Medal: Sir Francis Galton, F.R.S., for researches on heredity.—The Rumford Medal: Prof. Heinrich Rubens, for researches on radiation, especially of long wave length.—The Davy Medal: Prof. Theodore W. Richards, for researches on the determination of atomic weights.—The Darwin Medal: Mr. Roland Trimen, F.R.S., for South African bionomic researches, in a large part undertaken as the outcome of correspondence with Charles Darwin. —The Sylvester Medal: Dr. Henry F. Baker, F.R.S., for researches in the theory of Abelian functions and for his edition of Sylvester's collected works.—The Hughes Medal: Prof. John A. Fleming, F.R.S., for researches in electricity and electrical measurements.

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THE University of Liverpool has conferred the honorary degree of LL.D. upon Lord Rosebery, Lord Cromer, Lord Morley of Blackburn, the Right Hon. John Burns, and Sir Archibald Geikie.

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THE University of Buenos Ayres has conferred the honorary degree of LL.D. upon Mr. Bryce, the British Ambassador at Washington.

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BY a decree of Convocation, the title of Professor Emeritus has been conferred on Dr. T. E. Holland, Fellow of All Souls, who recently resigned the Chichele Professorship of International Law and Diplomacy after a tenure of thirty-six years.

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MR. BRITON RIVIERE, M.A., Hon. D.C.L., F.B.A., has been elected an Honorary Fellow of Oriel College, Oxford.

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A PORTRAIT of Dr. Westlake, late Professor of International Law in the University of Cambridge, has been handed over, on behalf of the subscribers, to Trinity College.

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A PORTRAIT of Dr. Courtney Kenny, Downing Professor of the Laws of England, Cambridge, has been presented to Downing College on behalf of the subscribers (past and present members of the College). The artist is Mr. Clegg Wilkinson.

Endowments and Benefactions.

MR. OTTO BEIT has agreed to divert the sum of £200,000, bequeathed by Mr. Alfred Beit for a University at Johannesburg, to the creation of a teaching University at Groote Schuur. Sir Julius Wernher will make up the amount to an aggregate of £500,000.

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MR. BAILEY, of Johannesburg, has given £500 towards the finishing of the late Sir Henry Acland's house for the use of the School of Geography at Oxford, and has promised £250 a year for five years to pay the rent and upkeep.

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SIR HENRY ROSCOE, Chairman of the Chemical Appeal Committee, University College, London, appeals for £16,000 by Christmas Day, so as to enable the Senate of London University to exercise the option they hold to purchase the proposed site of the new Chemical Laboratories in Gower Place.

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THROUGH the munificence of Mr. T. Fenwick Harrison, Mr. John W. Hughes, and Mr. Heath Harrison—all members of the firm of Messrs. T. & J. Harrison, shipowners—new laboratories will be at once built and equipped at Liverpool University, at a cost of £35,000.

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MR. ROBERT T. MARTIN has offered to Belfast University a gift of wrought-iron gates, "of stately and appropriate dimensions and design," for the central entrance.

* * *

MESSRS. THOMPSON, Cardiff, have presented to Cardiff University College a spacious athletic field.

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SIR T. PRITCHARD JONES has offered to build a Great Hall for the University College of North Wales, at a cost of £17,000.

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THE Glasgow Victoria Infirmary has received an anonymous gift of £5,000 for a Chemical Laboratory for Scientific Research.

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THE Society of Schoolmasters has received a second donation of £100 from the Committee of the Head Masters' Conference.

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MR. F. L. DAVIDSON, York House, Cullen, has intimated a gift of £1,000 in aid of the building scheme at Fordyce Academy, provided it be decided to build a secondary school there.

Appointments and Vacancies.

MR. ARTHUR EVERETT SHIPLEY, M.A., D.Sc., F.R.S., &c., Fellow, Tutor, Lecturer at Christ's College, Cambridge, has been elected Master of the College.

Dr. Shipley was educated at University College School, London, Bartholomew's Hospital, and Christ's College, Cambridge. He took a First Class in both parts of the Natural Sciences Tripos (1882 and 1884); was University Demonstrator of Comparative Anatomy, 1885–94; and Lecturer on Advanced Morphology of the Invertebrata, 1894–1908. He was made a Fellow of his College in 1887. He was sent on a mission by the Colonial Office to investigate a plant disease in the Bermudas, 1887; was appointed Secretary to the Museums and Lectures Syndicate, 1891, and member of the Council of the Senate, 1896. He has written and edited many important works in natural history, and contributed numerous zoological papers to scientific journals. He is just under fifty.

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THE Regius Professorship of Divinity in Oxford University is vacant through the death of Canon Ince, who has held the office since 1878.

* * *

DR. J. B. BURY, Regius Professor of Modern History at Cambridge, has been appointed Romanes Lecturer at Oxford for 1911.

In the University of Birmingham, Mr. J. Purser, M.Sc., has been appointed Senior Lecturer in Civil Engineering; Mr. T. F. Wall, M.Sc., Lecturer, and Mr. J. Shearing, Assistant Lecturer and Demonstrator, in Electrical Engineering; Mr. W. G. Wishart, B.Sc., Assistant Lecturer in Machine Design; Mr. R. C. Panton, Assistant Lecturer in Civil Engineering; Mlle B. Pienez, Assistant to the Professor of French; and Miss C. Wordsworth, Assistant to the Professor of Classics.

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In the University of Bristol, Mr. J. F. Dobson, M.A., Senior Assistant Lecturer in Classics in Manchester University, has been appointed Professor of Classics; and Dr. A. R. Skemp, Ph D. Strasb., Lecturer in English in Sheffield University, Winterstoke Professor of English.

Mr. Dobson was educated at St. Paul's and at Trinity, Cambridge, where he won the Porson University Scholarship and graduated with highest classical honours. For five years he was an Assistant Master at Clifton College before going to Manchester.

Dr. Skemp was a Manchester student, graduating with highest honours in English Language and Literature, and carrying off many prizes and scholarships as well as a Research Fellowship. He studied English Philology at Berlin, and has been Lecturer in English at Strasburg University. He has published some scholarly work.

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In the University of Bristol, Mr. J. W. Eaton, B.A., has been appointed Assistant Lecturer in French and German.

* * *

At University College, Cardiff, Mr. G. D. Brooks, B.A., has been appointed Assistant Lecturer in Greek; and Mr. H. A. Haig, M.A., B.S., Lecturer in Histology and Embryology.

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Mr. H. O. Meredith, M.A., King's College, Cambridge, has been appointed Professor of Economics in Belfast University.

* * *

A Professor of Philosophy is required at once for the Presidency College, Calcutta (Indian Educational Service). Rs.500 a month, rising to Rs.1,000. Not more than about thirty, and unmarried. Particulars from the Secretary, Board of Education, Whitehall, S.W. (under cover marked "C. A."). Scotch candidates should apply to the Secretary, Scotch Education Department, Whitehall, S.W.

* * *

A Professor of Education is required for the South African College, Cape Town. £500, commencing. Age not over thirty-five. Applications (with fifteen copies of testimonials and a medical certificate of health) should be posted to the Registrar by December 8. Particulars from the High Commissioner for the Union of South Africa, Victoria Street, London (to whom one copy of the application and testimonials should also be sent).

The same College requires also Lecturers in English Language and Literature, History, Geology, Applied Mathematics, and Engineering. £300. Age not over thirty. Three copies of testimonials and a medical certificate. Application and particulars as above.

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Mr. A. Macdonald, M.A., B.Sc., Assistant to the Professor of Natural Philosophy in the Technical College, Glasgow, has been appointed Professor of Physics at Dacca, Eastern Bengal.

* * *

Mr. R. N. Gilchrist, M.A. Aberd., has been appointed Professor of English and Philosophy in one of the Bengal Colleges of Calcutta University.

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Mr. J. H. Flather, M.A., of Emmanuel College, has been appointed Chief Secretary to the Cambridge Local Examinations and Lectures Syndicate, in succession to Dr. Keynes.

A Graduate in Science is required as assistant in the Natural History Section of the Western Australian Museum, Perth, Western Australia. £350. Post applications to Director by December 31.

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Mr. J. S. Thomson, Ph.D. Berne, has been appointed Demonstrator in Zoology in Manchester University, in room of Dr. W. D. Henderson.

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Mr. Osbert G. S. Crawford, B.A., Keble College, has been appointed Junior Demonstrator in Geography in Oxford School of Geography.

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At the Merchant Venturers' Technical College, Bristol, Mr. F. J. Broadbent, B.Sc., Mr. O. J. Williams, B.Sc., and Mr. A. Fisher, have been appointed Lecturers in scientific industrial subjects.

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The Rev. H. L. Sheppard has resigned the Headship o Oxford House, Bethnal Green, through illness.

Mr. Sheppard was educated at Marlborough and Trinity Hall, Cambridge. He was appointed Chaplain of Oxford House in 1907, and Head in 1909.

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Mr. J. G. Stewart, M.A., B.Sc. (Agr.), Aberdeen, Chief Assistant in the County Work Department of the Edinburgh and East of Scotland College of Agriculture, has been appointed Principal of the Essex County Laboratories, Chelmsford.

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The Rev. Franklyn de Winton Lushington, M.A., Head Master of Elstree School, Herts, has been appointed Head Master of Dover College, in room of the Rev. W. C. Compton, M.A., who has been preferred to the living of Sandhurst. Mr. Lushington is succeeded at Elstree by Mr. E. L. Sanderson.

Mr. Compton has been Head Master of Dover College since 1892. He was Scholar of Jesus College, Cambridge, 1873; University Members' Prizeman (Latin Essay), 1875; in the First Class of the Classical Tripos, 1877; Assistant Master at Uppingham, 1880, and House Master, 1881. He has published several classical works, and is an Alpinist and archæologist.

Mr. Lushington has been Head Master of Elstree School since 1903. Educated at Sutton Valence School and at Clare College, Cambridge, where he was Scholar and Prizeman, he took a Second Class in the Classical Tripos, 1890, and proceeded M.A. 1895. He was Assistant Master at Elstree, 1892–99; Assistant Chaplain at Montreux, 1899–1901; Chaplain at St. Paul's, Valetta, 1901–3; and Archdeacon of Malta, 1902–3. He has published "Sermons" and "Addresses" to Boys.

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The Head Mastership of Magnus Grammar School, Newark-on-Trent, is vacant through the resignation of Mr. E. A. Menneer, M.A. Oxon.

* * *

Miss Edith Helen Major, Head Mistress of East Putney High School, has been appointed Head Mistress of King Edward's High School for Girls, Birmingham, in succession to Miss E. E. M. Creak.

* * *

Mr. S. Brierley, formerly Head of the Textile School, Stroud, has been appointed Head of the Textile Department of Huddersfield Technical College.

* * *

Mr. G. A. Morrison, M.A., Classical Master, Gordon's College, Aberdeen, has been appointed Rector of the Royal Academy, Inverness.

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Mr. W. D. Kennedy, M.A., Rector of Invergordon Academy, has been appointed Head Master of Oban High School.

Mr. H. M. Hallsworth, M.A., B.Sc., Assistant Lecturer in Economics, Manchester University, has been appointed Lecturer in Commercial and Industrial Economics in Armstrong College, Newcastle-on-Tyne.

Scholarships.

Six Stewart of Rannoch Scholarships, each £25 a year for three years, will be offered in May, 1911, to natives of the counties of Wilts, Somerset, and Gloucester, including the city and county of Bristol: two for Hebrew (May 2), two for Greek and Latin (May 4), two for Sacred Music (May 9). Also two Open Scholarships for Hebrew and one Open Scholarship for Sacred Music. Regulations from the Registrary, Cambridge University.

* * *

An examination for not fewer than five and not more than ten Entrance Scholarships will be held at Harrow School on the Tuesday before Easter, 1911. Open to all boys (not members of the school) born in or after the year 1897. Particulars from the Head Master's Secretary.

Literary Items.

We cordially welcome the new *Journal Français*, issued by the Société Nationale des Professeurs de Français en Angleterre, "à l'usage de la jeunesse anglaise." "Sous une forme brève et correcte, il présentera les faits du jour les plus propres à intéresser, à élever et à orner l'esprit des jeunes." Apart from instructiveness, it will greatly help to familiarize readers with the French of to-day. Of course, there is a feuilleton.

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Messrs. J. M. Dent & Sons announce that they have prepared special bindings for "Everyman's Library," with a view to strength and flexibility. The thirteen sections of the Library are bound in different colours.

* * *

Messrs. Hachette have arranged with Prof. Gerothwohl, Litt D., for the publication of a Primer of French Literature on novel and comprehensive lines, "of which the most important feature will be the recognition of the part played by the 'personal equation' in literary evolution."

General.

The Right Hon. George Wyndham, M.P., delivered his Rectorial Address at Edinburgh University (October 28). His subject was "Romance: what it meant and when it first came into the Literature of Europe."

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The School of Higher Commercial Studies in Paris has established a new Chair of Advertising. M. Eugène Armand has been appointed first Professor.

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An Université des Lettres Françaises has been established at 1 Connaught Place, W. (Mlle Marie Orliac, Secretary). The "Université" will hold *conférences* by eminent French men and women.

* * *

The Agent-General for Tasmania (5 Victoria Street, Westminster) draws attention to the fact that lantern slides illustrating Tasmania and its resources can again be loaned from his office during the coming winter months. The slides are made up in complete sets of about fifty-four, and with each set a pamphlet will be sent to assist the lecturer in describing the country. The only cost to the borrower will be the postage on returning the slides (11d.).

"THE DULLNESS OF SCHOOLMASTERS."

By Prof. J. J. Findlay.

[The following article was written by Prof. Findlay in 1905 as a natural reaction to Mr. H. G. Wells's attack on Schoolmasters in the *Saturday Westminster Gazette* for October 21 in that year. Prof. Adams's lecture on "The Dullness of Schoolmasters," reported in our November issue, recalled the unpublished article to Prof. Findlay's mind, and he sends it now as his contribution to an interesting discussion.—Ed. *E. T.*]

Mr. H. G. Wells is right: education is the dullest of all trades. And it is right that it should be: it is inevitable that it should always be so! Mr. Wells, as a bright and vivacious journalist, has charmed the readers of the *Westminster Gazette* in his reply to "Kappa," but I hope to show that he has only skimmed the surface of a deep problem—skimmed it, too, with a light touch scarcely worthy of a man who has contributed so much of solid value to our new science of sociology.

For the problem, if worth handling at all, must be regarded as a sociological one—and we can treat it best by going direct to the situation as we find it in modern society. It is not only an affair of a few thousand boys and their teachers in the public schools; they, boys and masters alike, merely conform to conditions which repeat themselves in every type of school.

For good or evil, conditions of modern life demand that a boy shall be herded with his fellows in an institution we call "school"; and the occupations and influences of such an institution are determined by public opinion. The family, the State, the Church, the Press, mould this institution and require it to achieve certain results; and the seed brings forth fruit. The crop does not please Mr. Wells, nor that vague "we" on whose behalf he speaks. And his remedy is?—to order the supply of a new type of teacher; not the type created by public opinion, but a type after Mr. Wells's own heart. The "reform" he advocates is quite simple: you have merely to take all the delightful Bohemian, reforming, restless elements in society, who now do such excellent service in literature and journalism, in the theatre, in politics, in theology, in social work; take them away from their chosen field where they act so happily as a leaven to the dull grey atmosphere of the common herd, and turn them bodily into the schoolroom! Even then there would not be enough to go round, but perhaps Mr. Wells would be satisfied if the best of them—or the worst?—were made head masters. He does not pause to consider whether these "men of intellectual distinction" would accept the change; whether the inevitable confinement of life among the young would be tolerable to the type of teacher whom he desiderates; he does not even consider whether he himself, Mr. H. G. Wells, is not a case in point!

It is indeed remarkable that a man of such acute penetration in matters of sociology should have missed the leading factor in this argument. Mr. Wells does not know the nature of the corporate social organism which is made up of schoolboys. "Boys who are to be free, masterly men must hear free men talking freely of religion, of philosophy, of conduct." This sounds well, but (to speak with the same freedom that Mr. Wells employs) it is nonsense. Boys, of any age up to eighteen, very rarely want to hear any talk about these things; they learn about them not by the methods of debating societies, but by all sorts of indirect experience and intuition. Very rarely are they deeply influenced by the direct formal expression of opinions even when uttered by those whose opinion they reverence.

This is not to say that teachers or parents should always keep silence, or that the moral and intellectual atmosphere that surrounds a boy is of no account: it is immensely important. Both Mr. Wells and his opponents are right enough in trying to secure teachers for their sons who will provide the appropriate atmosphere. Mr. Wells wants teachers of the Wells type: "Kappa" wants teachers of the "Kappa" type; and the fact

that they take the trouble to write about the matter shows that they feel the importance of the issue.

But let us look at the boy again. You want him to be a "free" man at twenty-five, at thirty-five, at forty-five. As a scientific problem, the question is not to be answered so easily as Mr. Wells would have us believe. The young adolescent does not learn freedom by being made a prig with precocious notions of social procedure, beauty, love, and the Mosaic account of the Creation. The public school, at which both "Kappa" and Mr. Wells have had their fling, has fallen into precisely this same error—attempting to "capture" the boy by a premature introduction to the moral and intellectual responsibilities of adult life.* The scientific study of adolescence is coming now to the aid of the youngster who has not suffered so terribly at the hands of the dull average pedagogue, except when he has been driven too hard by the stress of competition. "Kappa" cries, "If youth but knew!"—and I reply, "Have patience, anxious soul; he *will* know in time!"

Let us, however, trace a little further the consequences that follow from our modern system — schools organized as a universal institution with its tens of thousands of teachers, the largest profession in the country.

The teacher is not appointed to introduce original ideas of society or morals into the life of his scholars; he is a professional man with the limitations, honourable ethical limitations, which he obeys (perhaps unconsciously) in honour just as a solicitor or a physician does. My solicitor is a Radical, keen about the nationalization of land, but when I go to him for professional advice and defence to protect my property he acts the professional part, and he would be base to do otherwise (he would also lose his billet, but that is not to the point just now). And in my school I am bound in honour to restrain myself — to reserve the latest ethical and social inventions for the enjoyment of myself and my adult friends, when the boys are gone to bed. They are not *my* boys and I should be playing traitor to my employers if I sought to indoctrinate them with my moral experiments.

"But," complains Mr. Wells, "this is all humbug! My complaint against you schoolmasters is that you are *not* interested in moral or social experiments; you are proper and soulless, you have no fire within you! I want to alter the type, to set up a new ideal of what the schoolmaster should be." Now I will, for the sake of argument, grant this premise, although it is evident that Mr. Wells does not know much of the inner life of teachers. He has his fling at the dullness of pedagogic magazines, as if every professional and technical magazine is not necessarily dull and unimaginative to the outsider! And against one trite article by a distinguished head master, let me set the work of Bowen of Harrow—perhaps Mr. Wells has never read "Arnoldides Chiffers"; if he has not, let him turn up an old volume of the *Journal of Education.*† And there are plenty of other men—and women too—toiling at this dull trade who know their way in the world of wit and of philosophy, who read H. G. Wells both for edification and amusement: but they do not wear their heart on their sleeve.

Let us, however, assume, what is no doubt true, that the majority of teachers are as Mr. Wells describes us. I maintain that they should and must be just that, for the situation is simply an illustration of a universal social phenomenon—the calling makes the man, or rather unmakes him, wraps round him a set of habits, a *Lebensanschauung,* which is as inevitable as the modest cut of his habiliments. You begin by herding together, in an artificial but necessary institution, a crowd of children, taking them from the natural environment of home, and you put this man to shepherd them—that is his life's job. If he is worth his salt, he puts his best into it, gets absorbed, gives his life for it; and then you round on him because he doesn't display the qualities of a literary hack producing "at a pinch a good novel or illuminating criticism"! Why not ask him "at a pinch" to build a country church or sail a steamship?

Will the reader of this paper condemn me because I cannot throw off a brilliant article with the ease displayed by Mr. Wells after long practice? My jerky, loose style is the result of environment and experience in the classroom: and if I, or the distinguished head master whom Mr. Wells attacks, were better writers we should be worse teachers!

You put your teacher in a monastery and then expect him to display the virtues or the vices of the man about town. This may be armchair sociology, but it is not common sense. A deeper view of human life—or, for the matter of that, of animal life—shows that the shoemaker must stick to his last, and that to see a man (who is a man) at his best, you must see him at his trade. Here is Johnson, M.A., assistant master—what a dull fellow at the club; he plays golf well, but hasn't a word to say for himself in the Golf House; seems as shy and awkward as a country yokel. These dull schoolmasters, you say! But get a look at him with his boys; they know him, and he keeps his humour and his philosophy for them. The grind is pretty hard, and when he gets a rest he is quite prepared to hear you talk and to enjoy the society of his equals; but if he is a *good* schoolmaster, ten to one that he will smoke his pipe and say nothing! That is the normal type, created by the trade he follows. Sneer at him if you like in the club or the philosophical society: but, if you have boys and care for their upbringing, you will respect his silence and give him a share of this larger social life which you, from lack of imagination, fancy he despises.

And, after all, he is not quite the dullard you imagine. In these days a schoolmaster in middle life who is doing his work well knows a good deal of what is going on in the world. He is often a devoted student of literature, although he does not train himself to write literary criticism; or he is a chemist, and follows keenly all that is going on in the world of science. His calling often leads him to make a wide acquaintance with many branches of culture, and as a result he often finds himself drawn out of the circle of school altogether and becomes politician or social worker, or writer, or engineer. Mr. Wells will probably know better than I how many prominent writers in France and England to-day started earning their bread in the schoolroom; if in later years they kick the intellectual ladder by which they climbed to a loftier view of life, that, too, is not without analogy in other callings.

Still, Mr. Wells is right: if the teacher plays the game and remains in the schoolroom he will be a dull fellow all his days. And what angers Mr. Wells above all is that this insipidity, as he calls it, is displayed especially in those intimate regions of life where morals and character are concerned. The last paragraphs in Mr. Wells's article strike at the root of the whole problem, and the argument needs meeting, not on any ground of professional or personal prejudice, but from the point of scientific investigation and wide empirical experience. Now I stand on this ground, and assert that the young adolescent from fourteen to eighteen has no concern with the stimulations which Mr. Wells desires to offer him. No doubt if you do so stimulate him, if you make him precocious either with the older enthusiasms of the churches or with the new enthusiasms of the emancipated whom Mr. Wells follows, you can achieve a great immediate success; you can get any number of converts to any creed if you seek them at that age! But wise parents and wise teachers cry "Hands off!" Experience grows and ripens in the tumult of these years not by violent intrusion of adult experience, but mainly by the indirect and silent forces of the environment.

I think Mr. Wells is misled by a superficial reading of pedagogic literature. Some of us, not many as yet, write books on education and we have much to say of ideals of character, of the importance of the moral life, and so forth. We are sincere enough in such writings; but is Mr. Wells, as a man of the world, so deceived as to judge of a profession by its professional literature? In matters of morals the working schoolmaster is not the prig that Mr. Wells would have us think; he knows the limits of his influence, and, as I have shown above, he respects limits which Mr. Wells would have him overstep.

But let us go a little further into the question of moral life in schools. Once more it is a matter of sociological investigation. Our school is an artificial collection of human beings, cut off—not, please, by the teacher, but by Mr. Wells and the nation at large—from the experience of home, of workshop,

* Arnold of Rugby led the way in this attempt to "hasten" the growth of the adolescent.—See Stanley's "Life," chapter iii.

† That essay is now reprinted in Bowen's Life.

of society. Now any such herd, be it of men or animals, tends to breed its own diseases and its own virtues. Bret Harte found this to be the case in "Roaring Camp," and an Eton master finds a parallel in his boarding house. Now the problem of morals, as well as those of intellect and of emotion, which trouble the schoolmaster are just those which arise in the natural course of events in this artificially constructed organism. And Mr. Wells has as little right to dogmatize upon their solution as I have upon the ethics of the National Liberal Club. There is no space in this article for constructive suggestion, but the solution of Mr. Wells's difficulties is easy. As is society, so is and must be the school. School reform comes just about thirty years behind social reform. "Our ideal of what a schoolmaster must be" is a part of our national ideal of what life means; and, if Mr. Wells wants to alter that ideal, he must begin with the nation and let the children and the boys follow suit in good time. Meanwhile, do not expect too much of school or of schoolmasters; an excess of schooling is unquestionably a bad experience for the adolescent, and the crying need of the time is for parents (and all adults who care about such things) to take part of the burden on their shoulders, to invite teacher and scholar to a wider share in the common life and thought which lie outside the cloister. But we schoolmasters will not and cannot do that: as public servants we abide by our profession in the "safe," the conservative, atmosphere which shelters all kinds of offspring until the wings are grown.

An esteemed correspondent of large educational experience, quoting the substance of Prof. Adams's citations from Mr. Wells (*Educational Times,* November, 1910, p. 449), writes:—

It is, of course, impossible to take this stuff seriously, but I may notice, by the way, that it is news for teachers, who are constantly warned against their devotion to games, that theirs is a sham enthusiasm. In their ignorance they thought that the world charged them with a fault of a loud dogmatism, but Mr. Wells finds that this is not so—they shrink from emphatic speech. And one word as to this "deadly silence," which Mr. Wells finds so puzzling. When a man at the street corner hears a statement contrary to his opinion, his reply too often is "You're a liar!" The schoolboy's equivalent is "Rot!" A more courteous manner, when a man does not wish to enter into an argument, is a "deadly silence." A man assails me in the train with his praise, say, of some statesman I distrust or of some principle that I disapprove. I should be very foolish then and there to enter into a discussion with him, however absurd I considered his arguments were: we should both get unpleasantly heated. A smile and a "deadly silence" is the only course.

We have had Mr. Wells's appreciation of the schoolmaster. Has he read the schoolmaster's conception of the journalist? It is quite unnecessary for me to set it out at length: he has only to adapt his own description of schoolmasters. The adaptation would be just as true, and as untrue, as the original.

Mr. Wells speaks of schoolmasters as a class. No man knows better than Mr. Wells that there is no class of "schoolmasters," any more than there is a class of "domestic servants." If there is the class "schoolmaster," then there is the class "father." And I should have the same right that Mr. Wells has used to say: "Fathers are dull, collectively and individually—grey and dull. Do grown-up sons find their fathers refreshing and inspiring persons? Are their minds fountains of thought in which they bathe and are restored? Do sons ever find a freshness and power in their father's discourse?"

This is not the first time that Mr. Wells has played these antics. They have ceased to be amusing. An old book tells us of the fool who cast about firebrands and then excused himself with "Am not I in sport?" I had my suspicions as to the cause of these outbreaks, and, fortunately, Mr. Wells has given the reason in his own words in "Mankind in the Making" (cited in *Educational Times,* March, 1904, p. 151):

Scolding the schoolmaster, gibing at the schoolmaster, guying, afflicting, and exasperating the schoolmaster in every conceivable way, is an amusement so entirely congenial to my temperament that I do not, for one moment, propose to abandon it. It is a devil I have, and I admit it.

Well, it is quite time that this devil was cast out.

The *Manchester Guardian* writes (November 9):—"The schoolmaster is often reproached with being dull. In many cases, no doubt, it is the revenge taken by the duffers in later life for the reproaches justly put on them at school. With others the reproach is based half on the easy prejudice of the man of affairs against the unpractical, and half on a rather indiscriminate, composite reminiscence of a schoolroom manner and voice ringing with obtuse, withering authority. A few years ago Mr. H. G. Wells formulated the charge with his usual incisiveness. 'Who does not know,' he wrote, 'the schoolmaster's trite, safe admirations, his thin, evasive discussions, his sham enthusiasms for cricket, for fly-fishing, for Perpendicular architecture, for boyish traits, his timid refuge in "good form," his deadly silences? And if we do not find him a refreshing and inspiring person . . . is it likely our sons will?' adding lightly that this dullness is imposed upon the schoolmaster by the very conditions of his life. In the current number of *The Educational Times,* Prof. Adams deals with the indictment in a manner so fresh and suggestive as to show once more how false all indictments against a whole class of men must necessarily be. If the reputation of dullness has any foundation, the fault, he suggests, is with ourselves for giving the cult of the dull such scope as it has in education. A full half of a schoolmaster's job is the stern suppression of eccentricities; 'society looks to him more to develop its views than to originate views of his own. He is expected to maintain the *status quo.*' He is a landmark rather than an outpost of civilization; he stands for the sound and accomplished facts and the venerable traditions, and it is hinted that letting himself go means mischief, if not disaster. There is, Prof. Adams makes out, something of a case for dullness—in the right sense and place. 'There can be little doubt that we teach too much, and that we are frequently dull because we stimulate in the wrong place.' The interesting lesson is and ought to be fatiguing, and your good master, who is trying all the time to look at things from his pupils' point of view rather than insisting on his own, cannot ignore it. It is sometimes said we must beware of sapping the moral fibre of the pupil by making his lesson too interesting and saving the boy desirable effort; where else is the preparation for an uninteresting world? Prof. Adams rightly retorts that the world is libelled—'easy for most of us it certainly is not, but it is interesting for all.' When he adds, 'it is not desired that the pupils shall be saved trouble, but rather that they shall be made to take trouble—trouble about the right things,' we begin to suspect that no country ever had worse schoolmasters than it deserved and most scholars a great deal better than they deserved. Would that some one would come along to justify and illuminate for us the inherent dullness of the merchant and the professional man, the accountant and the manufacturer!"

The *Journal of Education* says: "A lecture on Dullness may be anything but dull, as Prof. Adams proved in his paper read before the College of Preceptors last month. He took up the challenge of an ex-schoolmaster—Mr. H. G. Wells—who pronounced that dullness was the badge of all the tribe, and that as he read an educational journal, which, if we are not mistaken, he once edited, he seemed to be watching a game of billiards played with wooden cushions and beechwood balls. With stupidity, Prof. Adams first observed, schoolmasters are not charged, and dullness may be either objective or subjective. For objective dullness, imposed on him by the conditions under which he works, the schoolmaster is not directly responsible; and subjective dullness, though doubtless a defect, and as such curable, is not altogether blameworthy. The schoolmaster owes reverence to the boy, and must not give himself away. Moreover, in the work of training, inhibition is no less important than stimulus, and wise passiveness is often mistaken for dullness. It is to be hoped that Mr. H. G. Wells will accept the invitation to descend from his Olympian heights and face the music of the Preceptors."

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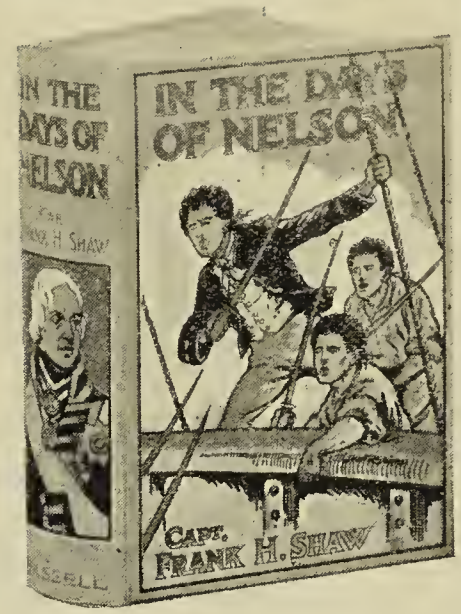

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BOOK-KEEPING, AND HOW TO TEACH IT

AT the Evening Meeting of the members of the College of Preceptors, on Wednesday, November 16, Dr. G. ARMITAGE SMITH in the chair, J. BLAKE HARROLD, Esq., A.C.I.S., F.C.R.A., read a paper on the above subject. He said:—

The study of book-keeping is second to none in calling forth mental ideas and initiative. Those who have but an elementary knowledge of the subject are wont to decry its educational value, but an answer to such criticism is at once apparent—"Are they competent to judge?" However clever they may be in other matters, they are not qualified to express an opinion on what they do not understand. The English nation is a commercial nation, and more and more do parents require their sons and daughters to be trained in subjects to fit them for their struggles in after life. It is now claimed that book-keeping, which requires a good arithmetical knowledge, is second to none in its importance to all, for every one needs to know how to keep some record of his income and expenditure, and this knowledge can hardly be obtained too soon. In its study the critical faculties are strengthened and a mathematical mind is developed. Young students can be easily brought to take a great interest in the subject, particularly if it be attractively expounded, and if the accounts of various clubs (football, cricket, &c.) connected with a school are entrusted to the keeping of a competent student—subject, of course, to an efficient audit on the part of a responsible person—such practical results of an elementary acquaintance with the subject will go far to stimulate in others an increasing desire to become equally competent.

The commercial use which book-keeping can be made to serve is an admirable answer to the student's eternal question (when told he is to take up a new subject) "What good is it?" Such a query is less irritating when so obvious a retort is possible.

We are told that we live in a strenuous age, that the struggle for life is now so severe and the position of the worker so precarious, that the only safe rule for the young is some such sordid maxim as "learn to earn;" but we are forgetting the meaning of the word "culture." If it be asked why one diploma is better than another, the tutor is content to say that the examination is harder and honestly believes that to be a satisfactory explanation. The late Sir Charles Trevelyan, borrowing an idea from China, that brilliant model of enlightened progress and good government, introduced the system of competitive examination for the Civil Service, where fractional percentages are added up to qualify a candidate, and there is no semblance of a personal interview, except with the physician; but examinations and percentages are not an absolutely sound test of capacity. Indeed, a competitive examination is little more than a duel between the examiner and the coach over the body of the candidate. We are doing the cause of education and the mental progress of the race enormous injury by the stupid system under which a man who makes 1,000 marks finds a post, while an equally good man who makes 999 marks is sent back to obscurity. The obvious retort that if he makes fewer marks he is not so good a man simply begs the question. An examination of the College of Preceptors is on a different basis; here the *raison d'être* is not to pick out a few, but to test the many—to assure, in fact, that they have an intelligent knowledge of what they have been taught.

The purpose of education is, however, to make not a mere wage-earner, but a man. Necessary as money may be, it is only a means, and a very subordinate means, to the end, which is the multiplication of cultured humanity. Unless the study of accounts subserve this purpose, it is unworthy of a prominent place among the items of a curriculum. I wish to show that it does, and this can be done only by taking a wider outlook than

that of some who say that book-keeping consists merely in setting down figures in the right places and adding them up.

Book-keeping is a part of education—that is, a part of the process by which we develop the mental and moral character. At the lowest, a teacher has to fit his pupils to earn their livelihood, to supply them with a knowledge of certain indispensable facts, and to train them in moral duties which they will have henceforward to practise. More than this, he must aim at training them in *activity, vigour,* and *accuracy* in mental operations, that they may learn to love the right thing and do it spontaneously, and not in grudging obedience to the old proverb that "Honesty is the best policy."

The cultivation of *activity* of mind is one important point. An examination paper on book-keeping differs from the actual books of a firm in several important particulars. It represents, perhaps, a month's transactions, perhaps a couple of a dozen of them, while in actual work there will be fifty or a hundred times the number. Everything in it has to pass through the hands of one man, the candidate, whereas later he will find himself specializing in one kind only. He must learn the active intelligence that will enable him to disentangle his mind from the complex and concentrate it on the simple, and, without losing his power of seeing a group of things as a whole, he must be able to contemplate any element by itself in detail. At this point comes in the supreme need of arithmetical agility. Any instructor would deny emphatically the teaching conveyed by the words "Slow and sure." The contrary is often the truth. It is the rapid calculator who is the most accurate, and it is a valuable acquisition to have been taught to add, multiply, and divide mentally with promptitude.

Last of the mental virtues that I have named is *accuracy.* The study of book-keeping is a sure (and sometimes severe) cure for slovenliness. The books cannot be permitted to balance approximately. As a writer once remarked, "Whether the path through the month's transactions be direct or tortuous, Debit and Credit must find themselves absolutely side by side at the close. It is better training in this respect than physical science, in which all nature is in a conspiracy against the observer to make his observations unreliable. The book-keeper may have to invent assets or liabilities on occasion, but he must do this with a sharp eye to the accurate interlocking of the parts of the complete structure."

Second only to *accuracy* is the other essential of *neatness.* Slovenly working must be discouraged, for if "Cleanliness be next to Godliness" the average schoolboy is, in his work, usually very far distant from that desirable estate! In book-keeping, more, perhaps, than in any other subject is neatness essential. To aid this a good style of handwriting must be cultivated. In *The Educational Times* of March 1 last the following article appeared:—

When the *Times* devotes a long leader to such a humble accomplishment as "Handwriting," one may infer that "there's matter in't." The occasion was a declaration by Mr. Huth Jackson at a meeting of the Institute of Bankers: "he must frankly say that he thought that the standard of the young men of the present day in the matter of handwriting was not so high as it used to be, and this was, curiously enough, more marked in the case of those who had been educated in our great public schools than in the case of others who had not the advantages of a public-school education." The public schools may fight the matter out with Mr. Jackson; and it will not do, as has been suggested, to pass on the blame to the parents. Nor will Hamlet's excuse serve:

> "I once did hold it, as our statists do,
> A baseness to write fair, and labour'd much
> How to forget that learning."

Apparently, Hamlet had learned, and had deliberately followed a misleading model to unlearn; we suspect Mr. Jackson's young men have never learned, though, when they come to him, it would do them "yeoman service." As the *Times* says, "why should these things be?" "Apparently," it answers, "because our schoolmasters hold, with Dogberry, that to write comes by nature, and that it does not much matter whether educated men and women write well or ill, legibly or illegibly." Well, "it does matter a great deal." We do not inquire whether bad writing means "arrogance or carelessness": enough that writing that is not clear is an intolerable nuisance. There is needed but the slightest effort of attention and firmness on the part of teachers to remedy the mischief.

I cannot emphasize too strongly the need of teachers taking greater pains in teaching their pupils to write properly. In one of the most difficult competitive examinations in the United Kingdom, that of the Home (Class I) and India Civil Service, marks are now deducted for bad and illegible handwriting, and in most other examinations great value is given to it, consequently the need of proper tuition in this essential accomplishment is self-evident—for other purposes than book-keeping!

The subject of Book-keeping is a very wide and comprehensive one, which has existed almost as long as trade has. In the early days of barter no accounts were necessary, nor are they now where such a system is still in vogue. The dividing line between barbarism and civilization is the starting-point for the keeping of accounts. Although the origin of book-keeping is obscure, it would be interesting to go back to that period of time which indicates the dawn of civilization, and to trace the slow enforcement of the necessity of some method of keeping the records of transactions. It was certainly known to the ancients, for Cicero arranged bill transactions between Rome and Athens to prevent the remittance of money for his son's education.

The Italian system of book-keeping seems to be the earliest known method of keeping accounts, and I think we are justified in assuming that the real birthplace of book-keeping was on the northern shores of the Adriatic, where it was rendered necessary by the great trading developments of Venetia.

The "Encyclopædia Britannica" furnishes valuable particulars of the early authors:—Lucas di Bargo, a mathematician and scholar, published a treatise on this subject as early as 1495. This was followed by several others, possessing considerable merit, but useless on account of their complexity. In course of time, the mercantile community evolved a more practical system, which replaced the theoretical suggestions of writers utterly ignorant of commercial matters. It seems not to have been until 1553 that a work on this subject was published in this country, when James Peel showed how "to keep a perfecte accompte of Debitour and Creditour." Some years later he wrote "The patheway to perfectness in the accomptes of Debitour and Creditour," and these books bear eloquent testimony to Peel's skill in this particular direction. Different persons, from time to time, have kept "chronicles" or "diaries" of their own, and it is recorded of David Wedderburne that he compiled the "Compt Buik" during the early part of the seventeenth century.

Since this time other authors have explained their particular methods, and, unlike modern authors of works upon this subject, they invariably found fault with the publications of their predecessors and endeavoured forthwith to remedy the defects. John Mair, in 1741, earned the approbation of the public for his excellent work of this character, and William Webster, fourteen years later, prefaced his publication with the words "I am sensible that book-sellers' shelves are already loaded with treatises on this subject." Then followed Gordon of Glasgow and William Squire towards the end of the eighteenth century, the latter of whom wrote: "The reader should be an expert in drawing out bills of parcels which will conduce in a great measure to his understanding of the practice of Book-keeping." In 1796 Mr. E. T. Jones of Bristol devised a "plan for keeping books correctly," breaking the ice with a treatise which is still held in very high estimation, and received a "patent" under the hands of his Majesty King George III for his "English System of Book-keeping." Then followed a visible improvement in the writings of authors on this important subject—as in those of Booth (1789), Hamilton (1820), Morrison (1823), and Chambers; but all were elementary works more particularly adapted to schools and illustrating the principles of the system by the example of one set of books adapted to foreign trade; so that in the nineteenth century the list of authors on works of book-keeping is a lengthy one, and it is now unnecessary to make special distinctions as to their character at this time. In the past ten years, however, there has been a big advance in the quality of the text-books and a corresponding alteration in the style of the examinations. As the now old-fashioned Euclid has, if one may so term it, been developed into the modern text-book on Geometry, so has book-keeping been evolved into a concise and practical art which has necessitated teachers being "up-to-date" in their knowledge. One essential, then, in the successful teaching of the subject is a proper text-book—there are very many excellent ones on the market, and it would be invidious to make special distinctions here (although I shall be pleased to advise any one privately in the matter). It is, or should be, obvious that a text-book in use twenty or thirty years ago is not sufficient to meet present requirements, but it is unfortunately by no means a rare occurrence.

The other essential is that the teacher be a master of his subject. This, again, should be too obvious to need mention, but, unfortunately, experience as an examiner has proved the contrary. I have been told of an instance where, when book-keeping was added to the curriculum of a school, the

only master who had spare time to take it on the day allotted was the gymnastic instructor! In another case, the French master had to undertake the duty. Neither of these gentlemen was acquainted in the smallest degree with the subject, and, however competent they might have been in their proper spheres, it is evident that their so-called "tuition" in a matter in which they were as ignorant as their pupils was mere waste of time and did far more harm than good.

Having, then, secured a competent teacher and a proper text-book, the learner has his pathway made smooth. As a lecturer on accountancy for the past fifteen years, during which period many hundreds of students have passed through my hands, I may, perhaps, be allowed to speak with some degree of confidence on the best method of imparting a knowledge of book-keeping to others.

As with so many other subjects, the teaching of the first steps is the most difficult part; the average scholar seems often almost wilfully dense and incapable of understanding the simplest facts. The first consideration is to secure the pupils' interest. To do this it is essential that they understand what they are doing and why they do it in the manner taught.

Book-keeping, however, has to be done in writing, and not mastered by reading books, and, consequently, a little practical demonstration goes far to make the teacher's meaning clear. The terms, "Dr." and "Cr." are the first stumbling blocks. By taking two blackboards and ruling each as a ledger account, and inserting a few transactions (as shown) this point is soon mastered. The whole subject, it should be explained, depends upon the elementary fact that "where there is a receiver there must be a giver," and the theory of double entry is based upon this. Make, therefore, the students understand this fact clearly by such instances as "Sold goods to Jones, £10"; explain that Jones is the receiver and *you* are the giver; but, as you are keeping your own books, you must keep some record of *what* you give (or receive), and, consequently, in this case, your *Goods* Account gives. When once the student has a grip of the "why and wherefore" of his work progress is rapid.

The golden rules of book-keeping must be thoroughly explained and inculcated as soon as possible: (1) debit the receiver or what is received, and credit the giver or what is given, (2) debit a loss and credit a gain, (3) every debit must have a corresponding credit—The totals of all debits must equal the totals of all credits. Having explained thus the theory of double-entry book-keeping, the next step is to show how necessary a book of first entry is to ensure the non-omission of one-half of a transaction as would be possible with direct ledger postings. Thus comes in the Journal, the two money columns on the right-hand side of the page being explained as significant of the corresponding sides of the ledger. After the students are proficient in thus entering transactions, the next step is to show them how to shorten their work; this, as a saving of labour and trouble, is always received in an attentive and welcome manner. I refer more especially to the "Combinations." The purchases of £10 worth of goods from Brown, Jones, & Robinson on the same date can be, of course, shortened by entering "Goods, £30, Dr. to Brown £10, to Jones £10, and to Robinson £10"; instead of "Goods £10, Dr. to Brown £10"; "Goods £10, Dr. to Jones £10," &c. When it is realized that two "goods" entries are thus omitted (apparently), the value of such a step is always self-evident to the learners. Another help to beginners in remembering on which side of the Journal a discount entry goes, is that it is almost invariably (in elementary transactions) on the side where the money is. All such business transactions are necessarily unfamiliar to the average schoolboy, and any little hint of this description fixes the idea in his mind.

As soon as the Journal is mastered—and a number of exercises in journalizing *only* should be worked—the next process is merely copying, and, remembering how the Journal comes into being, the reason of transferring into the *grand livre*—the book of final entry, or Ledger — is self-evident and quickly mastered.

When the postings are complete, the extraction of the Trial Balance (which with beginners should be made up of "totals") follows, and it can be given added interest if a little assumed anxiety is apparent on the part of the teacher as to whether the sides will agree and are also in agreement with the Journal total. If the Ledger a/cs are properly folioed, the insertion of the folio numbers in the Journal is of interest to young students, as they are usually very keen on "filling up the gaps." It is all-important to arouse and maintain a keen interest in the early stages, for later the acquired knowledge kindles in the student a desire to continue the subject for its own sake. The Trial Balance proving correct, we have then to "balance our books" and extract the "Balance a/c," the meaning of which soon becomes impressed on the beginner's mind when he is told of its reason and reminded of the golden rule that "there cannot be a debit without a corresponding credit," and consequently that, if he is closing "Jones a/c" by writing in, say, "To Balance £5. 10s.," he must, on the opposite side of the "Balance a/c," insert its counterbalancing entry: "By Jones £5. 10s." The closing of the Goods and Profit and Loss a/cs have to be specially made clear. Thus far, then, with a few complete exercises of elementary transactions, any class should have mastered the *system* of double entry.

When this stage has been reached, the next step is to impress upon them that, as in business, "time is money," the shorter the methods adopted the better. The use of the Journal is, as a matter of fact, sometimes obligatory abroad for all transactions, and hence this system is known as the "Continental System"; but when an ordinary waste book (or list of transactions) is examined, one cannot but be struck by the fact that the vast majority of the items consist of either "the receipt or payment of cash" or "the purchase or sale of goods." It has, of course, been found in actual commercial life to be impossible in most businesses to journalize all items, and therefore other books of first entry are brought into use, in which transactions of a similar nature are collected together. The chance of less work is, as I have said, always inviting to scholars, and consequently they usually welcome and eagerly master the promised greater ease of work. Here, then, is the opportunity for bringing early into the subject the up-to-date and practical method of book-keeping, which is alone now required; viz., the use of a *Cash Book* for all the cash transactions, the *Purchases Book* for all the credit purchases, and the *Sales Book* for all the credit sales, leaving "what cannot go into either of these books" for the Journal, as the other books of first entry—*Bills Book*, *Returns Book*, &c.—are not required for the Junior Syllabus. A few exercises are usually enough for this modern system (which should alone be taught) to be well mastered. At first a little confusion is caused in the posting to the Ledger, but the advantages of this practical method in shortening the labour are grasped so quickly that it is very easily learned.

The Journal so admirably shows the theory of double entry and is so helpful in beginning, that it should always be adhered to at the commencement of teaching book-keeping, but its supersession by the other books mentioned should take place as early as possible.

A disquisition on the subject of "how to teach" is by no means easy. A teacher's problems and trials are inexhaustible; some take an individual, others some dozens at a time; but, on the whole, it is submitted that the method now advocated will be found to be the best to suit the general requirements.

When the books are mastered comes the introduction of more advanced transactions dealing with technical practical terms, such as "bank," "bills of exchange," &c. To most quickly make these understood, the circulation of actual forms (cheques, &c.) is very helpful. Take an ordinary cheque, "to bearer" and "to order," and explain how it is filled up, dealt with in actual transfer, and entered into the books of its various possessors; then ask the students to each draw one out unaided. Follow a similar course with bills of exchange, and it will be remarkable how soon all is grasped. Pay attention to the additional points: the "crossing" of a cheque, the *ad valorem* stamp on a bill, &c., for all such have practical interest, and are, therefore, comprehended. The old adage, "An ounce of practice is worth a ton of theory," is never more apparent than at this stage of the subject. A knowledge of business terms is now becoming very essential, and the scope can be enlarged at almost every lesson.

The syllabus of one County Council suggests that each class should be taught collectively, "a portion of each lesson being devoted to the explanation of principles, transactions, and terms, and a portion to the elucidation of difficulties met with in the home work." This is an excellent rule to follow, *but* in the reverse order—viz., first go through the home work, and make all difficulties clear, before opening up new ground. Thus no confusion in the students' minds will result, and they will feel that they *know* what has gone before and not be confused with new matter.

It should not be difficult to bring a class of young students of either sex up to this stage—that of the Junior Examination Syllabus—in a couple of terms, if two separate lessons of one hour each be given per week and an adequate amount of home

work be done. It will doubtless be remembered that the syllabus approved by the Council for the Junior Examination is as follows :—

> A knowledge of Double-Entry Book-keeping and of ordinary mercantile terms. The Journal and its subdivisions—Purchases, Sales, and Cash books—posting to Ledger—Trial Balance, Profit and Loss account, and Balance Sheet. Bank and bills transactions, consignment accounts, &c.

And this ground has been well covered in the foregoing remarks. Students of a slightly higher age can be prepared for examinations of a higher level in a course of twenty-four weeks with one lesson per week—*e.g.*, such a course at the Birkbeck College has been found ample for both the Advanced Examinations of the London Chamber of Commerce and the Royal Society of Arts, but adult students are naturally more eager to master the subject, knowing its importance to them. A willing student makes rapid progress! Consequently it should not be found impossible to commence with a class of raw beginners in January and to prepare them for the Midsummer Junior Examination of the College.

Any further remarks which you will permit me to give as regards the heading, "A knowledge of mercantile terms," apply equally to students preparing for the Senior Examination, with which, after a disquisition on the preliminary stage (which, I am afraid, has been considered of undue length), I will now deal. The Syllabus of the Advanced Stage is as follows :—

> *First Class* [*or Senior*].—A more advanced knowledge of the subjects of the Junior syllabus, with the addition of Partnership accounts, preparation of Trading and Profit and Loss accounts, Reserve accounts, and an elementary knowledge of the accounts (capital, &c.) of Limited Companies.

Here it is evident that a more extended knowledge on the part of the entrants is requisite. The candidate for the Advanced certificate is assumed to have the Junior, and consequently he will be tested to ascertain that he is master of the higher level of the work detailed. He should be able to enter and post transactions, and consequently the "back-bone" of the usual type of Advanced paper is a given Trial Balance from which he is expected to prepare a Trading Account, a Profit & Loss A/c and a Balance Sheet. Usually a few "adjustment entries" are required to be taken into account. An ordinary merchant naturally is unable to pay all his accounts on, say, the last day of the year; he may have paid some charges in advance—*e.g.*, telephone, rent, or rates. The candidate must be made aware of the treatment of such common incidents in practical everyday business life. It is not difficult when it is borne in mind that the accounts of one year must include not only the expenses *paid*, but also those which have *accrued*, and as a set-off must be given the benefit of payments in advance made during the period treated.

The great majority of examinations, even of an Intermediate level, now include at least one question or exercise of this type. It is no doubt quite unnecessary for me to describe the Trading and P. & L. a/cs, for a complete survey or description would occupy too long; suffice to say that the Trading a/c should include the items to be found in an ordinary Goods a/c and such items as wages and carriage inwards which directly enter into the cost of production. In many businesses there are special charges which must be included—*e.g.*, in a wine importer's books, the customs duties form a considerable addition to the initial cost of the commodity, but common sense and experience gained by practice are the great factors in deciding what is, and what is not, to be included. The balance of the Trading a/c is the *gross profit*, which is carried to the Profit and Loss a/c, to the debit of which are placed all the other expenses of the business—rent, establishment, management, and distributive expenses—which enables the *net profit* to be arrived at. If, when this type of accounting is commenced, the reason for it is made apparent, it is soon grasped by the learners. A concrete instance much assists its comprehension. For instance, if a man buys leather and makes it into boots, it would be folly to open an account for "leather" (as "the goods") and say that its balance after taking stock is profit; for it should be quite obvious that the greater part of the cost of boots is not the raw material, but the wages of the operatives. The sooner practical business requirements are learned the better.

The P. & L. balance is carried to the Balance Sheet, all such transfers being made, as the examination question indicates, direct and without the opening of any Ledger a/cs. It is unnecessary to describe what a Balance Sheet is (but to beginners it is sufficient to describe it as a "Balance a/c the other way round"). When its preparation is mastered, it is essential that its proper form be taught; it must show not only whether a firm is solvent or insolvent and the extent of its capital, but how that capital has been affected during the year by the addition of profits and interest or by the deduction of losses and drawings, and also of what the capital consists.

A well known text-book gives the following advice to candidates working out this type of exercise :—

> "In preparing Trading and Profit and Loss a/cs, care must be taken to distinguish between the items which would appear in each; while the classification or grouping of the items, both in the accounts and in the Balance Sheet, must receive attention. A mere list of Profit and Loss items and Assets and Liabilities is not sufficient; they should be displayed and grouped in a businesslike manner."

This is concise enough to obviate further comment, and we will pass on to the further requirements of the Syllabus. The candidates having spent more time in learning book-keeping will naturally be more expert and advanced; consequently, the other questions are designed to test their knowledge of the treatment of more difficult transactions in various books—sometimes some Journal entries, sometimes direct Ledger a/cs are required. These questions cover what may be termed "back ground," but the new syllabus portends an advance into the accounts of Limited Companies—which accounts are in practical life becoming more and more required as the advantages of trading with limited liability are becoming more and more recognized and adopted. This type of A/c offers no terrors to the advanced student and is easily mastered. When once the meaning of Capital—its various distinctive titles, nominal, issued, paid up, &c., and its subdivisons into preference, ordinary, and deferred shares, &c., are learned—the keeping of such books has no further difficulties.

Lastly, then, we come to the heading common to both stages of the examinations—that of "knowledge of ordinary mercantile terms," such as "acceptances" or "crossed cheques." Many are necessarily introduced into the book-keeping practical work, and consequently are learned instinctively, as it were. The "more often special business terms are introduced into current work the better" is a sound rule to follow. It is useless to "cram" this matter, for an examination almost invariably discloses such a weakness. The one bright spot—if it can so be termed (perhaps "moment of relaxation" is a better phrase?)—in an examiner's work is the perusal of "howlers" due to indiscriminate cramming. Some students are evidently instructed "to have a shot at everything," on the principle apparently that it may hit the mark. This is a false creed. The correction of many hundreds of examination papers necessarily has caused a collection of amusing howlers. To detail them would be too long, but I cannot resist giving one or two specially delectable specimens: "C.I.F." was explained as "comme il faut" ("as it should be"); "E. and O.E.," as "Errors and omissions *expected*"; "Mortgage on a house," as "A kind of balcony over a shop"; while at a recent examination it was remarkable how many described the term "Refer to Drawer" (in connexion with cheques) as "going to the cash-till to see the money is there"! When answering a question of this kind—viz., giving a definition—it is important to give what is asked for, and no more. Frequently the extra matter is incorrect and proves that the candidate has no exact knowledge of what he is writing, but has a "cramming," of which he wishes to make the best use, and so suffers. The example of the answer given by one such student to the question in a Scripture Knowledge paper ("Who was the first King of Israel?" "*Saul* was the first King of Israel—he was often known as *Paul*") will, perhaps, better illustrate my meaning.

Having now surveyed the scope of the College's Syllabus for each of the two stages, I cannot conclude in a better manner than by giving some practical hints to intending candidates, which, if impressed upon them by their teachers and followed by themselves, cannot but assist them in what is, to them at all events, an unenviable and often dreaded ordeal. The examinations are, in the minds of the average scholar, too often regarded as necessary evils that have to be endured as they cannot be avoided. This is an unfortunate impression. The hints to which I have referred are as follows, and are (*mutatis mutandis*) those given in a well known text-book :—

"Success at the examination depends upon knowledge, accuracy, dexterity, and style. Reliable knowledge is only to be acquired by methodical and painstaking work, which alone can result in obtaining a real grasp of the principles and practice of accounts. The work done at a class which meets but once a week is in-

sufficient to ensure a trustworthy acquaintance with the subject unless it is supplemented by considerable home-work. Between the class meetings, in addition to preparing exercises, carefully study those portions of the text-book under review, and, upon matters not thoroughly understood, write out questions for the teacher to answer at the following class. Accuracy is only attainable by undivided attention, by concentration of mind upon the particular work in hand. Inaccuracies often arise through general slovenliness, bad figuring, and the desire to work too rapidly, the result being a waste of both time and energy. While it is possible for the most precise book-keeper to make a mistake, it is a well known fact that those who are in habit of committing errors are those who allow their minds to wander and their attention to be diverted to matters which do not concern the duty of the moment.

"Concentration and carefulness must be cultivated when dealing with figures and problems in accounts if accuracy is to be secured. Dexterity in the manipulation of exercises and examination papers can only be achieved by methodical and persistent practice. Fitful work is of little avail: excellent methods at least double one's capacity for dispatching work. Mere reading of the text-book is useless of itself in the solution of practical problems. It is possible to have a profound knowledge of the mechanism of a typewriter and yet, by reason of not having operated the machine, be quite unable to type even a short letter. Book-keeping is not only a science-systematized knowledge, it is also an art—skill in using knowledge; and skill in accounts may only be acquired by methodical and assiduous practice. No student should enter himself for an examination unless he has worked numerous exercises in general Book-keeping, familiarizing himself with recording all kinds of transactions, plus at least five examination papers set by the particular examining body whose examination he is taking. This practice will enable the student to gauge the time necessary to devote to each part of the test paper when in the examination room.

"Style is the topstone of excellence, the hall-mark of the superior worker. Although the foundation may be well and truly laid, it must not be forgotten that it is the elegant superstructure which reveals the master mind; the delicate hand of the artist, who considers no detail too trivial to receive his concentrated attention. Without the inspiration of excellence there can be no real satisfaction and success. The desire to dispose of a great number of exercises must not be allowed to interfere with stylish work; quality always being more important than quantity. No subject lends itself more to the exercise of style, arrangement, display, and neatness than book-keeping. The various methods of setting out transactions in the books, as well as in the preparation of Trading and Profit and Loss a/cs, and B/S, should be carefully studied.

Never proceed without having mastered the "Instructions to Candidates." Non-compliance with instructions has caused hundreds to fail who might otherwise have succeeded. Immediately on receipt of the examination paper, read carefully through the "Instructions" to see what is required. Glance through the *whole* of the paper at the beginning. Read through each exercise or question before commencing its solution, and, if necessary, read it several times in order to thoroughly grasp its precise meaning. Always work the easier questions first, and thus make sure of a "pass." At most examinations specially ruled paper is supplied to each candidate.

"Most examiners now require practical expositions in preference to the antiquated method of journalizing every transaction. The exercises should always be worked so as to display a knowledge of modern business methods and the greatest practical skill in the setting out of the various transactions. Trial Balances should be composed of *balances* in preference to *totals*.

"Be at your place in the examination room punctually. To rush into the room on the stroke of time interferes with that self-possession and calmness which are so necessary to success."

I have now dealt, I am afraid only too imperfectly, with the subject-title in all its bearings, and will conclude. An economic doctrine holds that the continuous over-production of a commodity is an impossibility; but I fear you will agree that my lengthy discourse has gone far to prove that this doctrine does not hold good in the realm of lecturing or reading of papers.

An interesting and keen debate on many of the points raised in the paper then followed, which was brought to a conclusion by the CHAIRMAN, who, in proposing a vote of thanks to the lecturer, stated that he had been much struck with the interest taken by the meeting, as was evidenced in the animated discussion which had taken place. He himself had particularly noted for remark some of the advice tendered by Mr. Harrold, and he would specially emphasize the importance of up-to-date text-books and of competent teachers. We had to move with the times. It was useless now to take an old-fashioned four-wheeler as a rival to the modern taxi-cab, and, in teaching, the best means of communicating knowledge should be followed. Another point to which he would draw special attention was the importance of proper definitions.

Mr. HARROLD, in responding, expressed his pleasure at the interest taken as indicated by the number of questions put to him, which he hoped had been satisfactorily responded to, and stated that he would always be pleased to give his hearers any assistance or advice in his power concerning the matters discussed.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on November 19. Present: Rev. J. O. Bevan, in the chair; Prof. Adams, Dr. Armitage Smith, Mr. Baumann, Rev. J. B. Blomfield, Mr. Brown, Mr. J. L. Butler, Mr. Charles, Miss Crookshank, Mr. Eagles, Mr. Hay, Miss Jebb, Mr. Kelland, Mr. Millar Inglis, Mr. Milne, Mr. Pendlebury, Mr. Pinches, Miss Punnett, Mr. Rule, Mr. Rushbrooke, Mr. Starbuck, Mr. Storr, Mr. Vincent, and Mr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported the arrangements that had been made for holding the Christmas Certificate and Lower Forms Examinations on December 6–9 at 108 Centres in the United Kingdom and at 35 Colonial Centres. The programme of the Winter Meeting for Teachers, to take place in the second week in January, was approved and ordered to be published.

Diplomas were granted to the following, who had satisfied all the required conditions:—Licentiateship: Mr. J. Duggan; Associateship: Mr. G. Kane, Mr. W. Eyre-Walker, Mr. D. H. Middleton, and Miss A. M. Royce.

Mr. Millar Inglis and Mr. Storr were appointed the representatives of the College on the Joint Scholarships Board for the ensuing year.

Prof. Adams was appointed to give the Psychology Course of Lectures to Teachers, to take place in the early part of next year.

Arrangements were made for the Conference of Representatives of the Private Schools Association, the Teachers' Guild, and the College of Preceptors, to take place at the College in the first week in January.

Saturday, January 21, 1911, was fixed as the date of the next half-yearly General Meeting of the members of the College.

The following were appointed members of the *Educational Times* Publication Committee:—Prof. Adams, Mr. Charles, Mr. Kelland, and Dr. Moody.

The Education Committee presented a Report on the position of private schools in relation to the Board of Education and to Local Authorities, and on some of the suggestions offered by members of the College in response to the invitation of the Council. The report stated that the Committee had agreed on the principles expressed in the following propositions:—(1) That efficient private schools have a right to be reckoned as a part of the local provision for secondary education. (2) That private schools which fulfil the conditions of efficiency, and consequently receive public recognition, are entitled as of right to receive public aid as doing public work. The Committee pointed out that the most obvious evidence of efficiency was recognition by the Board of Education, and they agreed to recommend that principals of private schools who wished to assert the above rights should be urged to apply in the first place for inspection by the Board. There did not, however, seem to be any general agreement among principals of private schools as to the desirability of applying for further aid under existing conditions, seeing that the regulations of the Board of Education governing the distribution of Imperial grants precluded private schools from receiving such aid, and that Local Authorities are required to consult the Board of Education before taking steps to aid education other than elementary within their area. With a view to urge the abrogation of the regulations of the Board of Education, under which it is at present impossible for private schools to obtain Imperial grants, the Committee recommended that the College of Preceptors should take steps to obtain information as to the number of private schools which have attained the standard of efficiency required

for the receipt of such grants and which are also desirous of receiving them. The Committee also recommended that a Legal and Parliamentary Committee should be appointed whose function it should be to consider individual cases of refusal of recognition, and generally to watch the interests of members of the College. With regard to the suggestions offered by members, the report recommended that further facilities should be afforded for the use of the College building as a meeting place for members on a requisition signed by not fewer than four members. They also recommended that communications should be opened with those who advocated the establishment of branch institutions in connexion with the College, for the purpose of discovering the way in which this object could best be promoted. With regard to the proposal to establish a Provident Fund, the Council had already carefully considered similar proposals, with the assistance of experts in such work, and had decided that it would not be practicable to adopt any such scheme.—The Report was adopted.

The following persons were elected members of the College :—

Miss A. Smith, A.C.P., 88 Lordsmead Road, Tottenham.
Miss L. Denyar, A.C.P., L.L.A., The Hollies, Upper Fore Street, Edmonton.

The following were admitted to the privileges of membership, without payment, under Section II, cl. 5 of the By-laws :—

Mr. W. E. Cunliffe, L.C.P., 317 Hainton Avenue, Grimsby.
Mr. A. T. Long, B.A., B.Sc. Lond., L.C.P., 14 Grosvenor Road, Market Drayton.
Mr. A. H. Hart, A.C.P., St. Peter's College, Manor Road, Brockley, S E.
Mr. J. V. Pugh, B.A. Camb., A.C.P., The Grammar School, Ruthin.

The following books had been presented to the Library since the last meeting of the Council :—

By Principal Burrell.—The Shorter Bible.
By Edward Arnold.—Browne's The Poets' Realm; Hawkesworth's Arnold's Shilling English History.
By Blackie & Son.—Blackie's Plain Text Poets (The Song of Hiawatha, The Lady of the Lake, and Earlier Poems of Tennyson); Adair's Souvestre's Le Foyer Breton; Berry's England and the English; Clark's Lesage's Crispin Rival de son Maître; Lightbody's French Phrases and Idioms; Marsh's Picture Composition, Book 1; O'Neil's Simple Lessons in Nature Study; Palmer's Europe and its Peoples; Tomes's First Course in Practical Mathematics.
By the Cambridge University Press.—Morris's Great Britain and Ireland; Murison's English Composition.
By Macmillan & Co.—Augier and Sandeau's Le Gendre de Monsieur Poirier; Freund's Beaumarchais' Le Barbier de Séville, and Word- and Phrase-book for the same.
By Methuen & Co.—Beard's First Course in English; Cobb's Stories from Dickens; Cunnington's Stories from Old Italian Romance; Dyson's Stories from French History; Elias's Stories from Bunyan; Narramore's Preliminary Physiology.
By the Oxford University Press.—Oxford Wall Map of Africa (Physical Features with Names); Brown's Latin Literature of the Early Empire; Jane's Metternich to Bismarck; King's Select Orations of Cicero; Liddell's Defoe's Robinson Crusoe, Part I; Marriott's English Political Institutions; Plato's Apologia and Meno; Wickham's Selected Odes of Horace; Souter's Novum Testamentum Graece.
Calendar of King's College and King's College for Women.
Calendar of City of London College.

REVIEWS.

Dr. Hayward's New Volume.

Day and Evening Schools. Their Management and Organization, with special reference to the Problems of Adolescent Education. By F. H. Hayward, D.Litt., &c. (5s. net. Ralph, Holland, & Co.)

Dr. Hayward states that, in his opinion, "any one who attempts to be lucid, direct, suggestive, and sincere—to avoid, in fact, certain rather common faults of educational writing — must necessarily seem to approach, at times, rather near to the extremes of patronage and truculence." It is hopeless, after such an avowal, to look for an attractive and careful style in Dr. Hayward's book. He is in earnest; he wants his side to win. He is too much absorbed in his own views to preserve a respectful, considerate attitude of quiet reflection and steady balancing of arguments before those of others. Accordingly, he seems to identify assertiveness with weight of judgment. It is doubtful whether Dr. Hayward will win over converts to his own views, unless, indeed, they themselves go more than half-way to meet him and walk back with him.

Yet it is a great pity if educationists, somewhat repelled by the assertiveness of the writer, deny themselves the opportunity of reading this book. It is a thoughtful book, and we have learned to look for such from Dr. Hayward. But it is more. It is surprisingly rich in its knowledge of all kinds of recent literature, English and foreign: the novel, the drama, psychology, philosophy, politics, as well as education. The illustrations, culled from a remarkable number of sources, make a dip into the book at almost any page arresting and interesting. In its references to other books it is certainly the most "up-to-date" educational book we have seen lately. Plato and Aristotle are each mentioned once (in this book of over six hundred pages), and both are only to be found together in the same line relegated to a note in small print at the bottom of a page. In fact, the history of education might scarcely exist—that is, before the days of Herbart. Mr. Lock is quoted; not John Locke, but Mr. R. H. Lock. In place of the old educational names with which we are familiar, we meet new educational acquaintances in such names as those of Mr. Granville Barker, Mr. G. K. Chesterton, "Otto Ernst," Ibsen, "Kappa," Maeterlinck, Nietzsche, Rostand, Mr. Bernard Shaw, Tolstoy, Wagner, and H. G. Wells. In such company the study of education certainly cannot be termed "dry-as-dust." We congratulate Dr. Hayward on the educational use to which he turns these authors, and we are glad to be made to realize, by the reference to these names, that education is recognized to be a matter of such consequence that it plays so great a part in these world-wide writers.

Dr. Hayward's book is wonderfully comprehensive. It deals with psychology—in discussing the adolescent period and the instincts and their significance; it discusses the curriculum, both secular and non-secular; it deals with teaching methods and with the philosophy of habit. Perhaps the *pièce de résistance* is the collection of chapters on Formal Training. The formal training outlook is discussed with very little hopefulness. Then Dr. Hayward passes on to the school staff and co-education and specialization. On the subject of co-education, Dr. Hayward gives the arguments in its favour and presents the views of Dr. Stanley Hall, who is introduced as "almost the only eminent educationist of the present day who has adopted a definitely hostile attitude towards co-education." He probably would find that a large number of women educationists, certainly of some degree of eminence—heads of women's colleges, Cambridge and Oxford, and high schools for girls—have not yet been converted, and "will remain of the same opinion still," although "almost the only eminent educationist" on this side is Dr. Stanley Hall. Dr. Hayward writes on practical matters like classification of pupils, terminal examinations, the promotion of scholars' school conferences, schemes, and records. He discusses the relation of the school to the home, the nation, the world of Nature, the world of literature, the drama, and the world of art; he deals with training and discipline, with stimulus, with punishments.

His section on the evening school is very valuable, for Dr. Hayward realizes its possibilities. Indeed, we are of opinion that this part of his book shows the author at his best. It breathes with high humanism, without losing sight of what at least the author thinks practicable. His daring suggestion that the evening school should be made the scene of the discussion on controversial topics, such as Socialism, has at least the merit of the likelihood of exciting real interest in a number of the earnest pupils, and Dr. Hayward's proposed method is certainly suggestive. He gathers together, as an illustration, the case for Tariff Reform from the Tariff Reform League, and, similarly, on the other side, the case for Free Trade from the Free Trade Union. Now, with extremely good teachers, who could hold the balance between two opposite views and preserve a colourless attitude, this might be excellent. But, supposing the subject were an educational topic and Dr. Hayward the teacher, who does not see that it would be an unfair strain to expect that teacher to refrain from either "patronage or truculence"?

Dr. Hayward gives his views on the Eugenists, who, unfortunately, as he seems to theorize, ignore "interest," and show "snobbery in a new dress." He offers remarks on Mr. Keatinge's "Suggestion in Education," whom he claims, willy-nilly, as a Herbartian. He shows the hopefulness of experiments in educational psychology. His final chapters on the educational situation are characteristic. They are calculated to startle the conservative and traditional teacher. The exhortation, "Wake up, England!" is precisely the cry that Dr. Hayward delights to give to the teachers. It is one that English teachers have needed in the past. They are, perhaps, not quite so inert as they seem; but if they are too reposeful, let us not be unprepared for their waking up. When that takes place, though they may not "wake up" in the precise directions Dr. Hayward prescribes for them, we are of opinion, in spite of many obvious shortcomings in his books, Dr. Hayward's stimulating, sincere, out-

spoken views will be recognized as a tonic, which they will appreciate in spite of the "patronage and truculence."

ALGEBRA FOR SCHOOLS.

A New Algebra. Parts I–IV. By S. Barnard, M.A., and J. M. Child, B.A., B.Sc. (4s. Macmillan.)

Readers of the excellent school text-book on geometry produced some years since by Messrs. Barnard and Child will not be surprised at the high standard attained by them in their new treatise on algebra. The book will rank as one of the best amongst its fellow school texts. When complete, a Fifth Part will have been added to the four contained in the present volume, and the whole is intended to embrace a full school course. The subject is considered from the very commencement, and the aim of the work is to present the theory of elementary algebra in such a way as to ensure the scientific treatment of each portion and the logical development of the whole. It is to the teacher rather than to the junior student in general that the book promises to be most valuable from the point of view of direct utility, for it will be found very helpful in connexion with the task of framing an entire course of instruction, and, further, it will be invaluable in passing under review the subject-matter suitable for any special lesson. The average student, on the contrary, will benefit more by tuition in the theory of the text than by an unaided perusal of the text itself. Algebra as a generalized arithmetic is first treated, its relation to the fundamental laws of the science—the associative, the commutative, and the distributive laws—being very carefully shown and considered in all the necessary detail. At every step the authors take the utmost pains to point out the restrictions which arithmetic and a number system of positive integers alone impose on the operations investigated, and the student is made to recognize that his work—thorough and accurate up to a certain point—is, nevertheless, incomplete. He learns to assume an attitude of waiting and to watch for the means which he is aware will be hereafter adopted so as to render the laws applicable in a broader sense than that permitted by the use of natural numbers only.

The investigation of the algebra of these natural numbers occupies Part I, and involves the detailed treatment of the first four rules, together with equations and problems, factors, involution, evolution, and the graphical representation of natural numbers. From the first discussion of the important subject of factorization the consideration of one very useful form of resolution is omitted, and, though the method appears later in the solution of certain quadratic equations, the postponement of its employment is unhappy. The method referred to is that of resolving the expression ax^2+bx+c into factors in the following way:—The expression is equal to $[(ax)^2+b(ax)+ac]/a$, that is, to $(ax+p)(ax+q)/a$, where $p+q=b$ and $pq=ac$; it is readily seen (and becomes at once evident on applying the process) that the a introduced into numerator and denominator alike must ultimately be removable from the discovered factors and to leave the required factors only. The superior power of the above as compared with the tentative method suggested in the text is fairly obvious. Some of the definitions in Part I—for example, those distinguishing between equations of conditions and identical equations, and the definition of *converse* theorems—are capable of much improvement. It is satisfactory to note that the *sense* of lines is duly regarded from the first introduction of graphical representation.

Part II is devoted to the extension of the number system to zero and negative numbers. The preliminary discussion is excellent, and the fundamental laws are once more fully investigated in their bearing on the subject at the stage reached. Similar comments apply to the treatment of Parts III and IV in which rational and irrational numbers respectively play an important part. Ratio and proportion, variation, and progressions are also included in the present volumes. The preliminary investigation of problems might, we think, be improved in a measure by pointing out that the first of the various steps involved in the solution of every problem is the *translation* of the ordinary language in which the question has been framed into the language of algebra, every detail in the first form finding its counterpart in the second. The idea is not a new one, but it may well claim to be worthy of careful consideration. Exercises, varied and numerous, and a series of test papers form one of the features in this as in the majority of text-books, and the answers to these constitute the closing pages of the volume.

GENERAL NOTICES.

MATHEMATICS.

Mathematical Tables. By R. W. M. Gibbs, B.A. Camb., B.Sc. Lond., and G. E. Richards, B.Sc. Lond. (8d. net. Christophers.)

Four-figure tables, which appear to be generally reliable, though the final decimal place is not invariably the nearest to the corresponding value furnished by tables where the calculations have been carried a stage further. The student is expected to learn elsewhere how to make use of the pamphlet, save that hints are given as to the mode of finding differences by the aid of the difference columns. The foot-note attached to the first page of the tables is unscientific if we adopt as accurate the method of tabulation belonging to the early numbers. If we prefer to retain the wording of the note, then the minus signs preceding the digits in the difference columns should certainly be removed. In combination, note and notation are inconsistent.

The School Geometry. Parts I and II. By W. P. Workman, M.A., B.Sc., and A. G. Cracknell, M.A., B Sc., F.C.P. (2s. each Part. Clive: University Tutorial Press.)

Each part is an abridged version of the corresponding part of the authors' "Geometry, Theoretical and Practical," with which many teachers and their classes are already well acquainted. From the larger work all the specially difficult sections have been eliminated for the present issue, whilst the simpler portions of the earlier text are for the most part merely reprinted. By retaining the original numbering of the various articles, the authors have secured a substantial gain, since the old and new versions of the publication constitute a useful series of manuals for teachers and scholars respectively. Fairly large type, neat strong binding, and clear though somewhat small diagrams, are among the characteristic features of these little volumes.

Elements of Algebra. By Arthur Schultze, Ph.D. (4s. 6d. Macmillan.)

A well written and compact little book comprising a course in elementary algebra from which a useful training for junior students may be derived. The text deals with such subject-matter as is ordinarily treated in the junior class book on algebra, and includes at its close short chapters on arithmetic and geometric progressions, theory of indices, and the outlines of the binomial theorem, more especially for the case of a positive integral index. The work is the outcome of a desire (1) to impart a knowledge of general principles and simple theory well within the grasp of the beginner, and (2) to develop the intelligence of

(*Continued on page* 492.)

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ENGLISH LITERATURE.

"Masters of Literature."—*Emerson*. Edited by George Herbert Perris. (3s. 6d. net. Bell.)

Already we have mentioned several of the volumes of this substantial, convenient, and attractive series, which aims at giving the finest representative passages from the writings of the greatest authors, with editorial comments linking the selections together. The introductory essay, biographical and critical, is a strong feature. Mr. Perris discourses on Emerson in all important aspects with much sympathy, but still with sufficient detachment to give edge to his comment. He has also succeeded in the very difficult task of making a really good representative selection from Emerson's varied writings. The poetical selection is small—and, in our opinion, rightly so. Probably most readers will learn more of Emerson from this volume than from a collective edition of his works. The get-up of the volume is tasteful, and the size is handy.

Beowulf. Edited by W. J. Sedgefield, Litt.D., Lecturer in English Language in the University of Manchester. (9s. net. Manchester University Press: Sherratt & Hughes.)

This handsome volume is a fresh testimony to the activity and enterprise of the Manchester University Press. Dr. Sedgefield has expended much labour on the text: "Every departure from the MS. has been carefully considered and duly recorded in each case in the textual foot-notes." The introduction outlines the more important of the facts established and of the theories propounded about the poem, at greater length indeed than his predecessors, but still on a rather restricted scale; and he appends a good bibliography, which will enable students to fill out his outline. The notes are restricted to the explanation of the text, and they handle all the chief difficulties frankly, though not a few seem somewhat elementary. A full glossary is added—it will be found most helpful to the student. The text of "The Fight of Finnsburg" and of some other Old English epic remains (Widsith, Waldere, and Deor's Lament) is also given, but without commentary. The work has grown out of a purpose to assist Dr. Sedgefield's own students, and it will be very useful to other beginners as well. Within its intended scope it is capably executed and it is furnished forth in a very attractive form.

"Cambridge English Classics."—(1, 2, and 3) *Beaumont and Fletcher*. Vols. VII, VIII, and IX. The text edited by A. R. Waller, M.A. (4) *George Gascoigne's Works*. Vol. II. Edited by John W. Cunliffe, M.A., D.Lit. Lond., Professor of English in the University of Wisconsin, U.S.A. (4s. 6d. net each. Cambridge University Press.)

(1 2, 3) Each volume contains five plays, with Mr. Waller's careful textual notes in appendix. Another volume will probably complete the valuable edition.—(3) Prof. Cunliffe's thick volume completes the present issue of Gascoigne's known writings. It contains "The Glasse of Governement," "The Princely Pleasures at Kenelworth Castle," "The Steele Glas," and a number of other poems and prose works, including some pamphlets that have been hitherto almost inaccessible. There is the usual appendix of textual notes, and another appendix contains an unacknowledged pamphlet, "The Spoyle of Antwerpe," which is of great literary interest. A portrait of Gascoigne stands as frontispiece, and there are several other illustrations. The volume is very carefully edited, and will be most welcome to students of English literature.

SHAKESPEARE.

"University Tutorial Series."—(1) *As You Like It*. Edited by A. R. Weekes, B.A. Lond. (2) *Coriolanus* Edited by A J. F. Collins, M.A. Oxon. (3) *King Lear*. Edited by S. E. Goggin, M.A. Lond. (2s. each. Clive.)

This is a very substantial edition. The preliminary account of the life and works of Shakespeare, and the special introduction to the particular plays, are full and careful; and the notes are ample and intelligent, leaving no probable difficulty untouched. The type is good and the binding serviceable. The series will prove most valuable for school purposes as well as attractive to general readers.

The Oxford and Cambridge Edition of Tales from Shakespeare by Charles and Mary Lamb for Preliminary Students. Edited by A. Syms-Wood, B.A. Lond. and Ball. Coll. Oxon. Second Selection. (1s. 4d. George Gill & Sons.)

In the present volume six tales are drawn upon, and furnished with systematic and careful introductions and brief notes at the foot of the page. Each tale is followed by brief representative extracts from the play, and two sets of examination questions are appended to each play. The edition will be found very helpful in preparing for examinations on the matters contained in the selections.

The New Hudson Shakespeare. Introduction and notes by Henry Norman Hudson, LL.D. Edited and revised by Ebenezer Charlton Black, LL.D. (Glasgow), with the co-operation of Andrew Jackson George, Litt.D. (Amherst). School edition. (2s. each volume. Ginn.)

The latest volumes on our table are *Macbeth*, *Julius Caesar*, and *Henry the Fifth*. The introductions are very full, dealing amply with the sources, date of composition, early editions, versification and diction, dramatic structure, characters, &c., of the different plays. The critical notes are given at the foot of the page in brief indications, and under them run the explanatory notes, with which are mixed, as occasion serves, historical and literary illustrations. The volumes are edited with scholarly ability and much judgment, and they are beautifully printed and tastefully and serviceably got up.

Shakespeare's Richard II, Julius Caesar, and Macbeth. Edited by G. S. Gordon, Fellow of Magdalen College, Oxford. (3s. Clarendon Press.)

Mr. Gordon combines the three plays in a single volume. The introductions treat simply and plainly of the text, date of composition, sources, and construction and design of the several dramas; and the notes are restricted to necessary explanations of the text. An unpretentious, but useful and handy, edition, well printed and chastely got up.

MISCELLANEOUS.

The Navy League Annual (2s. 6d. net, Murray), founded and edited by Alan H. Burgoyne, is now in its fourth year of issue. The naval forces of the world are treated historically, statistically, and comparatively, with adequate knowledge and with measured criticism. The volume is comprehensive and thorough, and it fully maintains the high standard of the previous issues.

The Riviera has been opportunely added to the series of "Grieben's Guide Books" (Vol. 131). It contains eight maps and practically all the information that most travellers require. The London publishers are Messrs. Williams & Norgate. (3s. net.)

The Travel Handbook and Calendar, Winter 1910–11 (Continental Travel, Limited, 5 Endsleigh Gardens, N.W.), contains full details of Sir H. S. Lunn's arrangements for Alpine sports, descriptive itineraries of Mediterranean cruises, and particulars of tours in Italy, Spain, and Switzerland for next spring.

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(*Continued on page* 494.)

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Tom Bolt, by W. C. Metcalfe (2s. 6d., Jarrolds), is one of "Jarrolds' New Empire Rewards," an exciting tale of the ocean, centring in the Mutiny on the "Nemesis" outward bound from Liverpool to Rio de Janeiro with a general cargo. Tom Bolt and two companion apprentices of the "Malabar," outward bound for Calcutta, which had been rammed and sunk by a large steamer, are ruefully contemplating in a boat their single remaining biscuit when the abandoned "Nemesis" heaves in sight; and they have scarcely ascertained the state of things on board that vessel when a boatful of its former folk turns up, including a couple of ladies, whose fortunes are linked eventually with the hero's. Then comes the narrative of the mutiny and fresh adventures of a breezy quality. The exclamations of some of the personages are not lacking in vigour. Frontispiece and four other illustrations by W. Herbert Holloway.

Ocean Chums, by W. C. Metcalfe (2s. 6d., S.P.C.K.), is a very interesting narrative of adventure by sea. A preliminary wreck, with a gallant rescue of a fair maiden, a New Zealander with no relations but a lost uncle, lays a basis of expectation. The hero, a young sailor, is bound for Auckland. A collision throws him, together with two companions, on the deck of the strange ship, which has been ravaged with smallpox. He takes command, and lies to at Kerguelen Island to recuperate his crew. There occur startling discoveries, which are further elucidated after the ship reaches Melbourne and the hero and his companions go on to Auckland to join their original vessel. A well devised and well written story, continuously attractive and vigorous. Three coloured illustrations by W. S. Stacey.

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way, is an excellent specimen and gives a good account of himself, as the Viscount (among others) could testify. His father has risen from a collier to a colliery proprietor, and a descent into a coalpit ends in a mining disaster, which might have turned out worse. Nobby's father, a financier M.P., comes to grief. The last move is to the North-West Frontier of India, where Nobby and some of the other Southfields boys meet again under circumstances more exciting than a football match at Browntowers. A capital story, written with much verve and with sound feeling. Four coloured and four black-and-white illustrations by J. Finnemore, R.I.

A Scout's Son, by C. Turley (3s. 6d., Nelson), is a quietly active story of life at the modern public school at Rossborough, worked out very cleverly and with knowledge of the ways of schoolboys. The incidents are various and interesting, and perhaps the highest excitement arises when the house gets on fire through the blundering rather than the intention of one of the boys. Trumper's name might be written with a single syllable; and he had a good share of his father's energy and decision of character, his father being a mighty "scout" in the region of Mafeking. But can it be that the Head did not understand Trumper when he addressed him in fluent French? Mr. Turley's sarcasm is sharp.

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The O'Shaughnessy Girls, by Rosa Mulholland (6s., Blackie), is a fine story of Ireland and of London. The heroines are two daughters of the Lady of Castle Dermot on the Blackwater; and, while Miss Lavender loves her quiet Irish home, Miss Bell is smitten with the stage on a visit to London, and runs away and joins a travelling company. Her trials, adversities, and failure on the boards are depicted with great skill and with sympathetic insight. But Bell cannot keep quiet; and she enters with zest into the attempt to unravel a mystery about a young Englishman employed at Castle Dermot. The story of Lavender is interwoven with the story of Bell. No doubt the mystery is unveiled, and everybody lives happy ever after. Lady Gilbert writes with a deft and charming pen.

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(*Continued on page* 496.)

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"He is so lazy he never wants to do a stroke of work."

How often do we hear that sneer hurled at a man who, apparently well, goes through life showing a marked physical and mental inertia and disinclination for work!

"Lazy" is, however, by no means an accurate description of such people. It is often the one thing they are not. In such cases they are the victims of a disorder or nervous affection none the less real, none the less serious, because it is not regarded as a disease.

How far it is due to the excessive overdrafts on the phosphorus which is so important an element for the body's energy and vitality, and, as a well known professor of the University of London has written, "it is almost certain has an essential importance for the life of the cell and for the processes going on in it," has not been accurately determined.

That there is abundant proof for supposing it is due to this cause is shown by the fact that people who are languid and incapable of much exertion always derive marked benefit from taking glycero-phosphates in the same way as do sufferers from many conditions in which phosphorus is known to be deficient in the body.

WHAT DOCTORS SAY.

For this lack of mental and physical energy "the best and most readily assimilated food is a combination of casein with glycero-phosphates." These words were written by a doctor who has given much attention to the subject, in an article published in one of the leading medical journals, and have been endorsed by the best doctors everywhere.

Like his colleagues, this physician states that for several years he has obtained this combination in Sanatogen, which is the pure casein or body-building element of milk, chemically combined with glycero-phosphate of sodium, the latter being the form in which phosphorus is found in the nervous system.

Sanatogen's phosphorus is, therefore, easily assimilated and produces a rapid improvement in the condition of the nervous system, while its composition makes it, as doctors throughout the world have attested, the most revitalizing preparation known to Science.

It is thus able to transform the individual suffering from lassitude, lack of energy or "laziness" into one who is mentally and physically alert, vigorous and full of vitality.

Sanatogen, however, does more than this. It markedly benefits the quantity and quality of the red blood corpuscles. It effects a wonderful bettering of the digestion and the general nutrition of the body by bringing all the organs to their highest pitch of efficiency. The result is that the many nervous symptoms like Insomnia, impaired memory, and depressed vitality, due to the strain of life, rapidly disappear and the individual feels better than he ever felt before.

SIR GILBERT PARKER'S VIEWS.

Sir Gilbert Parker, M.P., has made the following statement on Sanatogen's value as a means of restoring energy and vitality.

He says:—"I have used Sanatogen at intervals since last autumn with extraordinary benefit. It is to my mind a true food-tonic, feeding the nerves, increasing the energy, and giving fresh vigour to the overworked body and mind."

Sir Gilbert Parker's reputation cannot fail to convince every one of the benefit to be derived from Sanatogen. Hundreds of other celebrities have written equally high encomiums of its merits.

An exceedingly interesting pamphlet bearing on this subject and on others of vital importance will be sent, free, on application to the Sanatogen Company, 12 Chenies Street, London, W.C., mentioning *The Educational Times.*

Sanatogen may be obtained of all chemists, price 1s. 9d. to 9s. 6d.

Sanatogen has the unqualified written endorsement of more than twelve thousand doctors. Among them are ten physicians to crowned heads of Europe, including Dr. Ott, who was, for many years, his late Majesty's physician at Marienbad.

[Advt.

story is fresh and vigorous and not a little amusing. Eight illustrations, four of them in colour, by E. S. Hodgson.

The Adventures of Phyllis, by Bessie Marchant (5s., Cassell), recounts experiences that are far removed from the ordinary life of most girls, but that are none the less interesting to them. The scenes are laid in the lonely mountain regions of the Argentine. Phyllis, on the failure of her father's speculations, accepts a situation as nursery governess on an *estaneia* in the hills, but is taken to the wrong house, where she nurses a wounded and helpless Englishman and finds that she is really in the hands of brigands. The mystery of the Englishman's situation involves other parties; but Phyllis escapes, taking him with her, and eventually reaches her proper destination. The story is really very simple; it is the working out of the story that enchains the reader's interest. Four coloured and four black-and-white illustrations by Fred Whiting.

For the Children.

The Children's Book of New Testament Story, by Mrs. C. D. Francis (2s. 6d., S.P.C.K.), is plainly and agreeably written for boys and girls of eight to fifteen. The customs of the people are incidentally explained, so as to remove probable difficulties. A charming volume, with thirty-seven illustrations, many of them coloured.

For Teddy and Me (2s. 6d., Cassell) is "a story book for little folks," containing stories by Murray Fisher and Agnes Grozier Herbertson—amusing stories about Teddy Bears, Golliwogs, and other toys, animals, and gnomes. There are sixty-four pictures in colour and black and white by Frank Hart and J. R. Monsell, and the book is cased in attractive picture boards.

My First Book about Pets, by Margaret Nelson (6d., Nelson), is a charming and instructive little book about pets in general, and about mice, kids, rabbits, birds, and many other creatures, in particular. The illustrations, coloured and other, are numerous and attractive.

Bosom Friends, by Angela Brazil (2s. 6d., Nelson), is "a seaside story," turning on the contrast between two little girls that happen to be namesakes, and on the misunderstandings arising out of the identity of name. The Sea Urchins' Club is an interesting institution: the members discover a desert island, take possession, build a hut out of the wreck of an old schooner, and so forth; and then the proprietor comes on the scene. The reconciliation of the old colonel to his widowed daughter-in-law through his granddaughter is very nicely worked out. A pretty and well written story. Two coloured illustrations.

In Grandfather's Garden, by E. Everett-Green (1s., Nelson), describes the experiences of a London boy "that had never been in the real country before" when he went to visit his grandfather to recruit after scarlet fever. There is a "girlie" too; and there are exciting adventures on the lake. The course of events, engineered by Girlie, leads to a reconciliation of the boy's mother to his grandfather. The story is carefully and deftly worked out, with plenty of interest for young readers. Two coloured illustrations.

Four Sea Urchins, by Theodora Mills (1s., Nelson), tells "what happened at Pen Porth." Well, there was Bill and Dan and Toby and Belle, and they played in the caves and on the sands and about the tide-pools, picknicked and fought battles and laid siege to forts, and so on; and there are some literary transactions. The doings of the four little friends will be followed with interest. Two coloured illustrations.

Our Secret Society, by W. Dingwall Fordyce (1s. 6d., Nelson), though suggesting inexperience at the start, soon warms up, and develops into a very interesting story. The local Sherlock Holmes Society has the honour of effective co-operation with a real detective from head-quarters; and youthful readers will overlook some strain of probabilities in the brisk unravelment of various mysteries. We hope Mr. Dingwall Fordyce, who bears a name well known and respected in other departments of activity, will try again: he makes a very promising bid for the favour of young story-readers. Two illustrations, coloured.

The Changeable Twins, by Arthur Wyatt (1s. 6d., Nelson), is a clever and amusing story. "You can't expect father to write his books properly if he is always expecting a cricket-ball to come through the window, can you?" This was the second accident, and Wilfrid was imprisoned in his room for the afternoon. But he was engaged for a cricket-match; so he got out at the window and went off, his twin-sister Daisy dressing up for him and taking his place. Of course, he is wanted by his father, and complications ensue, one after another. The book is carefully written and interesting throughout the whole of the trying developments. Two coloured illustrations.

Six Devonshire Dumplings, by Margaret Batchelor (2s., Nelson), depicts the transformation operated by the Devonshire air and lack of lessons upon half-a-dozen boys and girls, from fifteen to the baby, who went down from London to recuperate from measles at their grandfather's rectory a few miles from Puddlecombe. There is plenty of bustle and adventure—local humours, the bazaar, a day on the beach, Mrs. Sanderson's black currants, Farmer Rice's cornfield; but above all the mystery of the secret room at Biddlecombe House, and the disappearance of Miss Cordelia and of silver spoons and like unconsidered trifles. The complications are all worked out in an interesting way and with sound sympathy. Two coloured illustrations by A. E. Jackson.

The Maynard Cousins, by Geoffrey H. White (2s., Nelson), is a capital story, one of the best children's books of the season. A boy of twelve that is rigged out in velvet and ringlets and has never walked out a hundred yards without his mamma or his nurse, goes to spend a month with some cousins of a quite unconventional mode of life. The oldest cousin sees that he is not bullied, while the rollicking adventures of the children gradually "buck" him up. The varied experiences are healthy, often complicated (such as the discovery of the burglars), and always amusing. There is a great deal of sound human nature in the book. The style is crisp and good. Two coloured illustrations.

Three Tales of Hans Andersen—The Dauntless Tin Soldier, Thumbelisa, and the Little Mermaid—are combined in a most tasteful volume, spaciously printed, and furnished with twenty-two clever and attractive illustrations by Linley Sambourne (3s. 6d. net, Macmillan).

Religious and Moral.

The Little Gentleman, by Eleonora H. Stooke (1s., National Society's Depository), depicts the beneficent influence of the lay reader upon a little girl whose moral tone has suffered through neglect and ill-usage on the part of a harsh and miserly grandmother. The story is plainly and naturally developed. Frontispiece by E. R. Marquand.

An Uphill Fight, by M. Bramston (2s., National Society's Depository), illustrates the difficulties cast upon children by the misconduct of their parents. "We're the disgraced family of a father in penal servitude and a mother who drinks, and that's the long and short of it." The suspicions that fall upon both son and daughter are deftly developed from natural circumstances. The story is simply and capably written. Two full-page illustrations by Isabel Watkin.

Up-to-Date and *A Lucky Sixpence* go together to make up one volume, by Christabel R. Coleridge (2s., National Society's Depository). The first story works out the results of ignorant and malicious gossip in a small place, with counteracting religious influences. The other is, of course, a love story, with the strange vicissitudes of a fancy kitten, linking together high life and low, and involving questions of honesty. Both stories are crisply written. Two full-page illustrations by Isabel Watkin.

The Workman's Train, by Frances Ryves (1s. 6d., National Society's Depository), is "a tale of Greater London," affording glimpses of the lives of hard-working young girls in big City establishments, partly from the point of view of religious workers among them. The heroine is beautifully drawn, and the developments are full of sympathetic interest. Two full-page illustrations by E. R. Marquand.

Next-Door Gwennie, by L. E. Tiddeman (S.P.C.K.), is a simple kindly story, turning mainly about a doll presented to Gwennie by a neighbour little girl. Gwennie's mother is a widow, caretaker of the house, while the donor is the daughter of rich parents, with a cross-grained governess. Major Derrick, a close friend of Gwennie's father, just home from India, comes to look over the house with the view of taking it—a delightful character. A charming sketch. Three coloured illustrations by Oscar Wilson.

Joyce and the Rambler, by Amy Le Feuvre (6s., Hodder & Stoughton), is a well-written story, shaped out of somewhat difficult materials, and not a little complicated. Joyce returns from a Continental sojourn of a year to find her widowed mother on the point of marriage with an old general who has a houseful of grown children. One of the sons is musical, and Joyce is "a born musician"; but she is religious and he is non-religious. And then there is the Rambler—a wanderer (for reasons) and an artist, who is deeply religious. The complications are patiently and deftly worked out, and the tone is excellent. Coloured frontispiece.

Various.

Andrew Garnett's Will, by Edith E. Cowper (2s., S.P.C.K.), though quite an unpretentious volume, tells a cleverly conceived story with much verve and in excellent tone. Andrew, a stubborn pragmatical old fellow, on his deathbed insisted on keeping his will under his pillow, and of course there was somebody that distrusted the contents and took measures to remove it. The scene is laid in and near a small fishing town, and adventures on the sea are associated with adventures on the land. The characters are distinctively and firmly drawn, and many of the episodes are strongly dramatic. A book of marked excellence—though we are not sure that the legal points are beyond technical criticism. Fourteen illustrations by T. H. Robinson.

(*Continued on page* 498.)

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Grantham Gates, and five other much shorter stories, by Katherine E. Vernham (1s. 6d., National Society's Depository), make attractive reading, in spite of the perversities of the little heroine of the principal story. The traditional enigmatic prophecy of certain verses about Grantham Gates—"melancholy signs of bygone grandeur"—is patiently worked out to realization. Two full-page illustrations by E. R. Marquand.

The Fortunes of Flot, by K. F. Purdon (2s. 6d., Nelson), is Flot's own record of his experiences from the time that he lay "with a lot more puppies in a comfortable little hole on the side of a hill in Connemara" to a care-free and cherished old age. The author says it is "mainly fact." If so, it is none the worse for that. There are differences of masters—and of mistresses—as well as of dogs, and it is instructive to them to learn the views of the dog on the questions that arise between them. The variety of incident is considerable, and the interest is briskly maintained; and perhaps a moral may be instilled. Two coloured illustrations.

Celia: and the Parents, by L. B. Walford (1s. 6d., Nelson), works out certain aspects of the lady's proposition that "the past generation is not in sympathy with the present." For ourselves, we should take the side of "the parents," only we should have done what they did not, we should have applied some drastic treatment to Miss Celia's preposterous notions. The other silly young woman, at first a sort of rival of Celia's, at last becomes engaged—at any rate says so—to a German "Count," who is really a hairdresser. Celia marries the hero, who could scarcely have been so foolish as to propose to her; and, as for the living happy ever after we take leave to doubt it: we suspect Mab did quite as well even with her pseudo-Count—if she captured him. Two coloured illustrations.

All About Railways, by F. S. Hartnell (6s., Cassell), will afford full gratification and much instruction to boys that are interested in engines and other railway gear. The whole story of the railway, with all its work for architects, builders, clerks, engineers, lawyers, labourers, policemen, &c., is set forth without needless technicality in a very attractive manner, down to the advent of the mono-rail. The numerous illustrations show different types of engines old and new, carriages, signals and signal-boxes, stations, bridges, and so on. A very comprehensive, capable, and lucid book.

The Splendid Quest, by Basil Matthews, M.A. (Jarrolds), consists of "Stories of Knights on the Pilgrims' Way," and the knights are "just people who have carried the boys' wild joy of living and the girls' sensitiveness into the fighting days of manhood." There are the stories of Sir Galahad, King Louis IX of France, Abraham Lincoln, Charles Lamb, Joan of Arc, Dorothy Pattison, James Chalmers ("The Greatheart of Papua"), and others, ending with St. Paul and Jesus of Nazareth. A book of elevated purpose in simple language and healthy tone.

Annuals.

Chief of all annuals is *Chums* (8s., Cassell), with its excellent serials and short stories, its numerous articles of general interest, and its miscellany of papers on the multiplicity of matters that appeal more especially to active and inquiring boys, its coloured plates, and its countless other illustrations. The new volume maintains fully the high standard of its predecessors.

The Girl's Realm Annual (6s., Cassell) is, as usual, a massive volume, containing this year five serials, and a large number of short stories, plays, and articles by experienced writers for girls, with numerous excellent illustrations. There has been a considerable infusion of new blood into both the literary and the artistic department, bringing fresh vigour and wider variety. An admirable gift book for girls.

The *British Girl's Annual* (5s., Cassell), compiled by the Editor of "The Girl's Realm" from contributions by the most popular writers to "The Girl's Realm" and "Little Folks," is full of interest and entertainment. The principal feature, a long story, is well supported by a large number of attractive short stories. There are also suggestions for games and materials for private theatricals in which girls may engage. Eight full-page coloured plates and numerous black-and-white illustrations.

The *British Boy's Annual* (5s., Cassell) is a companion to "The British Girl's Annual." A number of the best writers of stories for boys furnish attractive contributions, longer or shorter, some of them stories of school life, others stories of adventure in wider fields. There are also instructive papers on such subjects of immediate interest as the Mono-rail, Flying Machines, Ships, &c. Eight coloured plates and numerous black-and-white illustrations.

Then there is *Cassell's Annual for Boys and Girls* (3s. 6d.), compiled by the Editor of "Little Folks," now in its second year of issue, and flourishing still more abundantly. The stories are well suited to the capacity and interest of little folks, and there are over a hundred coloured pictures and many illustrations in black and white, attractive and amusing.

The Christmas volume of *Little Folks* (3s. 6d., Cassell) offers a tempting attraction by its delightful picture cover. Inside there is the usual provision of serial stories, short stories, poetical pieces, interesting little articles, and so forth, with six coloured plates and hundreds of black-and-white illustrations A charming volume.

Nelson's Children's Annual is *The Jolly Book,* consisting of "Jolly Pictures and Jolly Stories for Jolly Youngsters" (2s. 6d.). The Editor (Mr. Edward Shirley) has provided a very interesting variety of stories in prose and in verse; and the illustrations, coloured and black and white, are abundant and excellent. A delightful book for children.

The *Almanach Hachette* (2 fr. net, Hachette), "petite encyclopédie populaire de la vie pratique," contains the usual extraordinary assemblage of practical information on the most diverse subjects of interest, with countless illustrations. It is brightly and artistically got up.

New Editions and Reprints.

In the fine series of "Oxford Editions of Standard Authors" Mr. Henry Frowde (Oxford University Press) publishes *The Heart of Midlothian* (Scott), with forty-seven illustrations, and *Robinson Crusoe* (Defoe), with fifty-five illustrations (2s. each). The latter volume, it should be noted, contains "The Farther Adventures of Robinson Crusoe, being the Second and Last Part of his Life and of the strange surprising Accounts of his Travels round three parts of the Globe." The volumes are beautifully printed, liberally illustrated, and substantially got up. The Series offers a wide choice, and the chooser can't go wrong. Also *The Fortunes of Nigel* and *The Abbot* (Scott), with fifty-two and thirty-six illustrations respectively.

Here and There, by Ascott R. Hope (5s., Adam & Charles Black), is a most welcome new edition of "An Album of Adventures," the original title being retained as sub-title. It is really a volume of a dozen holiday adventures in different parts of the world—on Exmoor and on Dartmoor, among the Lakes and at the seaside; in the Isle of Wight, in Wales, in the Midlands, and in Yorkshire; on the Brocken, in the Alps, in India, and in the Far West among the Apaches. The volume illustrates vividly the remarkable versatility of the author and his sympathetic understanding of the young folk he writes for. It is just as good as new for fresh readers; indeed it is better for all readers, seeing that it now contains six excellent full-page coloured illustrations by Dorothy Le Blanc Smith and R. Humphrey Feilden, and is very liberally printed and furnished forth.

The First Volume of *The Encyclopædia of Sport and Games,* edited by the Earl of Suffolk and Berkshire (10s. 6d. net; abroad 12s. 6d. net: Heinemann), appears in a new and enlarged edition, with over five hundred illustrations, partly colour plates, partly pictures from photographs and drawings. The subjects, treated in alphabetical order, close with "Cricket." Not only are records and developments of the old games and sports brought up to date, but many new subjects have been added, so that the work has become almost a new book, with a wider scope and a larger appeal. An immense advance has also been made in point of form, through the extraordinary developments that have taken place in the arts of illustration and reproduction since the publication of the first edition, and especially by the aid of instantaneous photography. Eight excellent coloured plates form a fresh attraction. A great book for boys, as well as for others that are interested in sport.

Messrs. Cassell publish in liberal form new editions of (1) Mr. Talbot Baines Reed's popular school story *Follow my Leader,* with four illustrations in colour by W. H. C. Groome (3s. 6d.); (2) *A Hunt on Snowshoes,* by the prolific Edward S. Ellis, with four full-page illustrations by Edwin J. Prittie (2s. 6d.)—a brisk Canadian story; (3) *Alice's Adventures in Wonderland* (Lewis Carroll), with eight coloured pictures and a hundred and twelve other illustrations by Charles Robinson—liberally printed and cleverly illustrated.

Messrs. Nelson issue a new edition of *The Land and the Book,* by the Rev. W. M. Thomson, D.D. (6s. net)—probably "the most popular work in existence on Bible Lands and Customs." Dr. Thomson was for thirty years a missionary in Syria and Palestine. The work has been revised by Julian Grande, F.R.G.S., in the light of the latest discoveries and statistics, with the addition of brief notes on particular places. It is the most valuable work of Bible illustration, and the singularly moderate price should give it the wide circulation that it so thoroughly deserves. There are twelve coloured and sixteen black-and-white illustrations, and a map of Palestine illustrating the Old and New Testaments.

Messrs. G. Bell & Sons publish a delightful edition of Mrs. Gaskell's *Sylvia's Lovers* (3s. 6d. net), with an excellent biographical and literary introduction by Thomas Seccombe and eight coloured illustrations by M. V. Wheelhouse. Also an English version of *The History of a Conscript of* 1813 (Erckmann-Chatrian)—a carefully revised edition of the rendering issued by Mr. John Camden Hotten some forty years back—with eight coloured plates by Lex de Renault (3s. 6d. net).

Messrs. Smith, Elder, & Co. issue in a new series a handy and agreeable edition of *Deeds that Won the Empire,* by W. H. Fitchett, B.A., LL.D. (1s. net). It describes vividly a series of historic battle scenes, from Cape St. Vincent to Trafalgar, with a frontispiece and plans. A most deservedly popular work.

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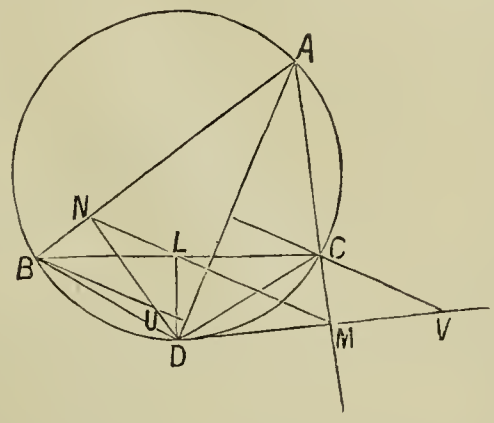
MATHEMATICS.

Editorial Note in reply to certain Contributors.

The Editor reminds contributors that manuscripts submitted with a view to possible publication are not, in general, acknowledged otherwise than by such publication (if selected) either in the columns of the *Educational Times* or in the volumes of the *Mathematical Reprint*. Acknowledgment of special packets may be obtained by a written request accompanied by a stamped and addressed envelope. The direct criticism of manuscripts offered for the mathematical columns of the *Educational Times* does not, in general, lie within the province of the Editor.

16873. (R. F. DAVIS, M.A.)—The bisector of the angle A meets the circle circumscribing the triangle ABC in the point D. If U, V are the orthocentres of the triangles ABD, ACD respectively, prove that UV is equal and parallel to BC.

Solutions (I) *by* JAMES BLAIKIE, M.A.; (II) *by* R. S. CAPON; (III) *by* A. M. NESBITT, M.A.; (IV) *by* E. B. BOWESMAN. B. C. WALLIS, B.Sc., F.C.P., *and others.*



(I) From D draw DL, DM, DN perpendicular to BC, CA, AB, obtaining the Simson (or Wallace) line NLM. By cyclic quadrilaterals,

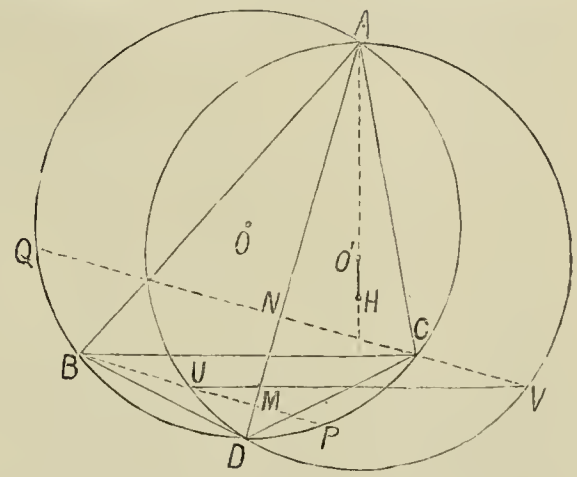
$$\angle BDN = \angle BLN = \angle CLM = \angle CDM;$$

and, since D is on the bisector,

$$DN = DM;$$

therefore BN = CM.

Also $\angle UBN = \angle VCM$, since each is the complement of $\frac{1}{2}A$. Thus the triangles UBN, VCM are congruent, and BU, CV, each of which is perpendicular to AD, are equal and parallel. Therefore BC, UV are equal and parallel.



(II) The reflection of the circle ABDC in AD passes through U and V, since VN = NQ and UM = MP.

If H is the orthocentre of the triangle ABC, and O and O′ the centres of the circles ABDC and AUDV respectively,

$$\angle OAB = \angle HAC;$$

therefore

$$\angle OAD = \angle HAD;$$

therefore O′ lies on AH. Also

$$\angle O'AD = \angle CAV$$

and $\angle O'AC = \angle OAB = \angle UAD$; therefore $\angle UAO' = \angle O'AV$; therefore AO′ is perpendicular to UV.

But AO′ is perpendicular to BC; therefore BC is parallel to UV.

Also BU is parallel to CV, each being perpendicular to AD; therefore

$$BC = UV.$$

[Rest in *Reprint*.]

16881. ("CHEMIST.")—Integrate $dx/dt = k_2(A-x)(B-y)^2$, where $k_1(y-x) = (B-y)(2x-y)$ and k_1, k_2, A, B are constants.

Solution by A. DAKIN, M.A., B.Sc.

The substitution $(2x-y)/(y-x) = k_1/(B-y) = w$, reduces the equation to

$$\frac{[(B+k_1)w+k_1]w^2+k_1w(w+2)}{(w+2)[(A-B)w^2+(2A-B+k_1)w+k_1]}\frac{dw}{dt} = k_2k_1^2.$$

The fraction on the left-hand side is

$$\frac{B+k_1}{A-B}+\frac{4}{w+2}+\frac{2k_1w}{(A-B)w^2+(2A-B+k_1)w+k_1}$$
$$-\frac{2A-B+k_1}{A-B}\cdot\frac{(2A-B+k_1)w+k_1}{(A-B)w^2+(2A-B+k_1)w+k_1}.$$

This integrated gives

$$\left(\frac{B+k_1}{A-B}\right) w + 4\log(w+2) + \left(\frac{k_1}{A-B} - \frac{C^2}{2(A-B)^2}\right),$$

$$\log\left[(A-B)w^2 + Cw + k_1\right] + \left(\frac{C^3}{2(A-B)} - 2Ck_1\right),$$

$$\log\frac{(A-B)w + \frac{1}{2}C - D}{(A-B)w + \frac{1}{2}C + D} = k_3 k_1^2 t + \text{a constant},$$

when $\quad C = 2A - B + k_1, \quad$ and $\quad D^2 = \frac{1}{4}C^2 - k_1(A-B)$.

Note on some Remarkable Relations appertaining to the Factorization of Bi-composite Numbers.

By D. Biddle, M.R.C.S.

Having $\quad N = S^2 + A = (S+u)(S-v) = H^2 - h^2 \quad \ldots\ldots\ldots\ldots (1)$

and $\quad A + uv = S(u-v) \quad \ldots\ldots\ldots\ldots (2)$,

where all the values are integral, let us treat uv as another factorizable N_1. Then, putting the same suffix to all the values in (1) and (2), we shall find the equations still hold good. We can then treat $u_1 v_1 = N_2$, and thence proceed to $u_2 v_2 = N_3$, and so on, until we can proceed no further. Two examples, taken at random, will serve to illustrate the various relations hereinafter specified :—

	N_n	S_n	A_n	u_n	v_n	H_n	h_n
(i)	1843	42	79	55	23	58	39
	1265	35	40	20	12	39	16
	240	15	15	5	3	16	4
	15	3	6	2	0	4	1
(ii)	1886601653	43435	2428	62334	25598	61803	43966
	1595625732	39945	22707	22389	14347	43966	18368
	321214983	17922	16899	4467	3575	18368	4021
	15969525	3996	1509	471	421	4021	446
	198291	445	266	26	24	446	25
	624	24	48	2	0	25	1

Representing the values in the last line by the suffix $n+r$, we have, invariably,

$$h_{n+r} = 1, \quad H_{n+r} = S_{n+r} + 1, \quad v_{n+r} = 0 \quad \ldots\ldots\ldots\ldots (3, 4, 5),$$

$$u_{n+r} = 2, \quad A_{n+r} = 2S_{n+r}, \quad N_{n+r} = S^2_{n+r} + A_{n+r} \ldots (6, 7, 8).$$

The difficulty is to find S_{n+r} or H_{n+r} (which differ by unity only).

$$H_n = h_{n-1} \quad \text{throughout} \quad \ldots\ldots\ldots\ldots (9),$$

$$H_n - S_n = h_{n+1} \quad ,, \quad \ldots\ldots\ldots\ldots (10),$$

$$S_n = h_{n-1} - h_{n+1} \quad ,, \quad \ldots\ldots\ldots\ldots (11),$$

$$u_n + v_n = 2h_n = 2H_{n+1} \quad ,, \quad \ldots\ldots\ldots\ldots (12),$$

$$u_n - v_n = 2h_{n+1} \quad ,, \quad \ldots\ldots\ldots\ldots (13),$$

$$(h^2_{n+1} + 2S_n h_{n+1} - A_n)^{\frac{1}{2}} = h_n \quad ,, \quad \ldots\ldots\ldots\ldots (14),$$

$$S_n + u_n = u_{n-1} \quad ,, \quad \ldots\ldots\ldots\ldots (15),$$

$$S_n - v_n = v_{n-1} \quad ,, \quad \ldots\ldots\ldots\ldots (16).$$

Moreover, by reference to (2), we obtain

$$N_n + A_{n-1} = S_{n-1}(u_{n-1} - v_{n-1}) = 2S_{n-1}h_n \quad \ldots\ldots\ldots\ldots (17);$$

therefore $\quad S_{n-1} = (N_n + A_{n-1})/2h_n \quad \ldots\ldots\ldots\ldots (18).$

This enables us to assign a narrow range to S_{n-1} and A_{n-1} when once we have risen above the final values S_{n+r} and A_{n+r} $(= 2S_{n+r})$.

The following, however, are still more remarkable relations, which, though capable of proof, need only be stated here :—

$$u_n = S_{n+1} + S_{n+2} + \ldots + S_{n+r} + 2 \quad \ldots\ldots\ldots\ldots (19),$$

$$v_n = S_{n+1} - S_{n+2} + \ldots \pm S_{n+r} \quad \ldots\ldots\ldots\ldots (20),$$

$$h_{n-1} = H_n = S_n + S_{n+2} + S_{n+4} + \ldots + 1 \quad \ldots\ldots\ldots\ldots (21),$$

$$h_n = u_n - u_{n+1} + u_{n+2} - \ldots \pm u_{n+r} \mp 1 \quad \ldots\ldots\ldots\ldots (22)$$

$$= v_n + v_{n+1} + v_{n+2} + \ldots + v_{n+r} + 1 \quad \ldots\ldots\ldots\ldots (23)$$

$$= S_{n+1} + S_{n+3} + S_{n+5} + \ldots + 1 \quad \ldots\ldots\ldots\ldots (24).$$

Again, $\quad A_n + h_n u_n = h_{n+1}(S_n + u_{n-1}) \quad \ldots\ldots\ldots\ldots (25),$

whence $\quad S_n = (h_n u_n + A_n)\, h_{n+1} - u_{n-1} \quad \ldots\ldots\ldots\ldots (26).$

By (18), $\quad S_n = (N_{n+1} + A_n)/2h_{n+1} \quad \ldots\ldots\ldots\ldots (27).$

By (19) we can transform (26), so that, by reduction, we obtain

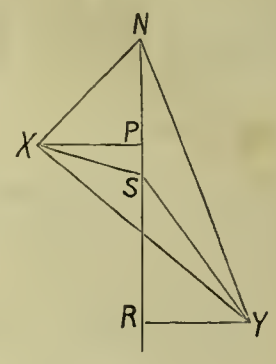
$$N_{n+r} = 2S_{n+r-1} - A_{n+r-1} = (H_{n+r} - 1)(S_{n+r} + 2) \quad \ldots\ldots\ldots\ldots (28),$$

agreeing with (27) in the particular instance, since $h_{n+r} = 1$.

[Rest in *Reprint*.]

13366. (I. Arnold.)—There are two towns lying N. and S. of each other, and distant from each other $2\frac{1}{4}$ miles. Their angles of depression as observed from a balloon are 45° and 60°, and, after the balloon has proceeded horizontally 6 miles in a S.E. direction, the angles of depression of each are exactly half of what they were before. Show how the perpendicular height of balloon is ascertained, and its height.

Solution by B. C. Wallis, B.Sc., F.C.P.



$NS = 2\frac{1}{4}$ miles ;

XY = plan of balloon track = 6 miles ;

h = balloon's height ;

$NX = h$;

$SX = h \cot 60° = h\,\frac{1}{3}\sqrt{3}$;

$NY = h \cot 22\frac{1}{2}° = h(1+\sqrt{2})$;

$SY = h \cot 30° = h\sqrt{3}$.

Let $\quad PS = x \quad$ and $\quad SR = y$.

Therefore

$$h^2 - (h\,\tfrac{1}{3}\sqrt{3})^2 = NP^2 - PS^2 = (2\tfrac{1}{4} - x)^2 - x^2,$$

i.e., $\quad \frac{2}{3}h^2 = \frac{81}{16} - \frac{9}{2}x.$

Also $\quad h^2(1+\sqrt{2})^2 - (h\sqrt{3})^2 = NR^2 - SR^2 = (2\tfrac{1}{4} + y)^2 - y^2,$

i.e., $\quad h^2\, 2\sqrt{2} = \frac{81}{16} + \frac{9}{2}y.$

But $\quad x + y = PR = 3\sqrt{2}$; therefore $\quad h^2\, 2\sqrt{2} = \frac{81}{16} - \frac{9}{2}x + \frac{27}{2}\sqrt{2}$;

therefore $\quad h^2(2\sqrt{2} - \frac{2}{3}) = \frac{27}{2}\sqrt{2}$;

i.e., $h^2 = \dfrac{81}{4}\left(\dfrac{6+\sqrt{2}}{17}\right)$, $\quad h = \dfrac{9}{2}\left(\dfrac{6+\sqrt{2}}{17}\right)^{\frac{1}{2}} = \dfrac{9}{2} \times \cdot 66 = 2\cdot 97$ miles (approx.).

16877. (J. H. M.)—If a, a' ; b, b' ; c, c' are pairs of opposite edges of a tetrahedron, show that angles λ, μ, ν can be found, so that

$$aa' : bb' : cc' = \sin\lambda : \sin\mu : \sin\nu,$$

$$aa' + bb'\cos\nu + cc'\cos\mu = 0,$$

$$aa'\cos\nu + bb' + cc'\cos\lambda = 0,$$

$$aa'\cos\mu + bb'\cos\lambda + cc' = 0,$$

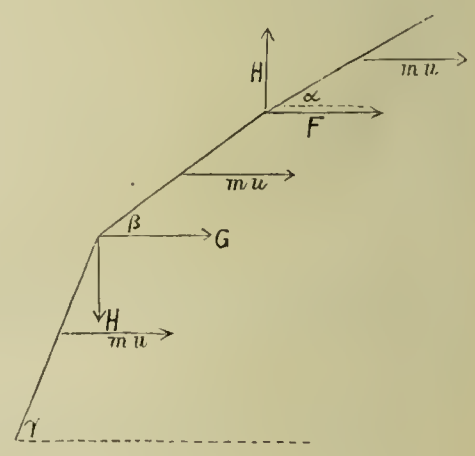
and find the geometrical meanings of λ, μ, ν.

Solution by M. T. Naraniengar, M.A.

Construct a triangle whose sides are proportional to aa', bb', cc' (which is possible only if the sum of any two of these products is greater than the third). Then λ, μ, ν are obviously the exterior angles of the triangle so that $\lambda + \mu + \nu = 2\pi$. The proof is obvious.

13227 (Professor Mukhopâdhyay.)—Three straight rods of equal length and mass lie on a smooth horizontal table, the middle one being smoothly jointed to the other two. Equal velocities in parallel directions are then impressed on the free extremities of the rods. Show that, if the system begins to move as a rigid body, the cotangents of the angles the rods make with the direction of the velocities of the extremities will be in arithmetical progression.

Solutions (I) *by* D. Edwardes, B.A., (II) *by* T. W. Chaundy, B.A.



(I) Let the rods AB, BC, CD, in their initial positions, make angles θ, ϕ, ψ with the direction of V, the prescribed velocity of the free ends. Let $(u_1, v_1), \ldots,$ be the velocity components of the centres of the rods ; then we find

$$u_1 = V - a\dot{\theta}\sin\theta,$$

$$v_1 = a\dot{\theta}\cos\theta,$$

$$u_2 = V - 2a\dot{\theta}\sin\theta - a\dot{\phi}\sin\phi,$$

$$v_2 = 2a\dot{\theta}\cos\theta + a\dot{\phi}\cos\phi,$$

$$u_3 = V + a\dot{\psi}\sin\psi,$$

$$v_3 = = -a\dot{\psi}\cos\psi,$$

and $\quad \dot{\phi} = \dot{\theta}\sin(\theta-\psi)/\sin(\psi-\phi), \quad \dot{\psi} = -\dot{\theta}\sin(\theta-\phi)/\sin(\psi-\phi).$

For the kinetic energy T we thus get

$$2T = V^2 - 2aV\dot{\theta}\sin\theta + \frac{4a^2\dot{\theta}^2}{3} + V^2 - 2aV\dot{\theta}\left\{2\sin\theta + \frac{\sin\phi\sin(\theta-\psi)}{\sin(\psi-\phi)}\right\}$$

$$+ a^2\dot{\theta}^2\left\{2\sin\theta + \frac{\sin\phi\sin(\theta-\psi)}{\sin(\psi-\phi)}\right\}^2 + a^2\dot{\theta}^2\left\{2\cos\theta + \frac{\cos\phi\sin(\theta-\psi)}{\sin(\psi-\phi)}\right\}$$

$$+ \tfrac{1}{3}a^2\dot{\theta}^2\frac{\sin^2(\theta-\psi)}{\sin^2(\psi-\phi)} + V^2 - 2aV\dot{\theta}\frac{\sin\psi\sin(\theta-\phi)}{\sin(\psi-\phi)} + \tfrac{4}{3}a^2\dot{\theta}^2\frac{\sin^2(\theta-\phi)}{\sin^2(\psi-\phi)},$$

which may be written (taking the mass of a rod as the unit mass)

$$2T = 3V^2 - 4aV\dot{\theta}\frac{\sin\theta\sin\phi\sin\psi}{\sin(\psi-\phi)}\left\{2\cot\phi - \cot\theta - \cot\psi\right\}$$

$$+ \tfrac{4}{3}a^2\dot{\theta}^2\left\{4 + \frac{3\cos(\theta-\phi)\sin(\theta-\psi)}{\sin(\psi-\phi)} + \frac{\sin^2(\theta-\phi) + \sin^2(\theta-\psi)}{\sin^2(\psi-\phi)}\right\}.$$

Differentiating with respect to $\dot{\theta}$, we have, by Kelvin's theorem, the value of $\dot{\theta}$ for the supposed initial position of the system, and if

$2\cos\phi = \cot\theta + \cot\beta$, then $\dot\theta = 0$, and therefore $\dot\phi = \dot\psi = 0$, and the system moves as if rigid.

(II) Let u be the impulsive velocity impressed on the system; F, G, H, H the impulsive stresses on the the central rod acting as shown in the diagram.

By taking moments for the outer rods about their free ends, we obtain

$$F\sin\alpha - H\cos\alpha = \tfrac{1}{2}mu\sin\alpha,$$
$$G\sin\gamma + H\cos\gamma = +\tfrac{1}{2}mu\sin\gamma;$$

therefore $\quad H\cot\alpha = F - \tfrac{1}{2}mu, \quad H\cot\gamma = -G + \tfrac{1}{2}mu.$

By taking moments for the middle rod about its centre, we obtain

$$2H\cos\beta = (F-G)\sin\beta \quad \text{or} \quad 2H\cot\beta = F - G = H(\cot\alpha + \cot\gamma),$$

thus $\quad \cot\alpha + \cot\gamma = 2\cot\beta.$

16918. (Lt.-Col. Allan Cunningham, R.E.)—Show how to factorize large Dimorph Cuban Numbers, $N = x^3 + y^3 = x'^3 + y'^3$.

Ex.—Resolve into prime factors

$$N = 220086^3 - 220085^3 = 83188^3 - 83181^3.$$

Solution by the Proposer.

Let $x - y = k\lambda$, $x' - y' = k\lambda'$, where k is the G.C.M. of $(x-y)$, $(x'-y')$, so that λ is prime to λ'. Then N contains the product $k\lambda\lambda'$,

and $$N = k\lambda\frac{x^3-y^3}{x-y} = k\lambda'\frac{x'^3-y'^3}{x'-y'} = k\lambda\lambda'.K.$$

Hence $$K = \frac{x^2+xy+y^2}{\lambda'} = \frac{x'^2+x'y'+y'^2}{\lambda} = \text{integer};$$

and, since the numerators are expressible in form (A^2+3B^2), the denominators must also be so expressible. Let $\lambda = \alpha^2+3\beta^2$, $\lambda' = \alpha'^2+3\beta'^2$.

Then $$K = \frac{(x+\frac{1}{2}y)^2+3(\frac{1}{2}y)^2}{\alpha'^2+3\beta'^2} = \frac{(x'+\frac{1}{2}y')^2+3(\frac{1}{2}y')^2}{\alpha^2+3\beta^2} \quad [\text{if } y,\ y' \text{ be } \textit{even}].$$

And the quotients must also be expressible in that form. Let the divisions be performed in such a way as to give the quotients in that form, viz., $\quad K = A^2+3B^2 = A'^2+3B'^2 = XY$ (suppose);

and the co-factors X, Y must be of the same 2-ic form, say

$$X = \xi^2+3\eta^2, \quad Y = \xi'^2+3\eta'^2,$$

whence $A = \xi\xi'-3\eta\eta'$, $B = \xi\eta'+\eta\xi'$, $A' = \xi\xi'+3\eta\eta'$, $B' = \xi\eta'-\eta\xi'$.

Solving these, the ratios $\xi:\eta$, $\xi':\eta'$ are given by

$$\frac{\xi}{\eta} = \frac{A\pm A'}{B-B'}, \quad \frac{\xi'}{\eta'} = \frac{A\pm A'}{B+B'};$$

and, since ξ should be prime to η, and ξ' prime to η', it follows that when the above fractions are reduced to their lowest terms, the actual values of ξ, ξ' are given by the reduced numerators, and those of η, η' by the reduced denominators. As A, B, A', B' are deduced from their squares in the formulæ, their signs are apparently indeterminate. It will be found necessary and sufficient to reckon B, B' both +, and to assign such signs to A, A' as shall yield ξ, ξ' prime to 3. This completes the factorization, so far as algebraically feasible. If y, y' be not both even (as supposed above), the numerators of κ may be expressed in the form (A^2+3B^2) in the ways appropriate when y or y' is odd: the general method to be followed is otherwise as above.

Ex.— $\quad N = 220086^3 - 220085^3 = 83188^3 - 83181^3.$

Here $x-y = 1$, $x'-y' = 7$; $k = 1$, $\lambda = 1$, $\lambda' = 7 = 2^2+3.1^2$.

$x = 220085$, $y = 220086$, $x' = 83181$, $y' = 83188$; [y, y' both even]

$$K = \frac{N}{\kappa\lambda\lambda'} = \frac{(x+\frac{1}{2}y)^2+3(\frac{1}{2}y)^2}{y} = \frac{(x'+\frac{1}{2}y')^2+3(\frac{1}{2}y')^2}{1}$$
$$= \frac{330128^2+3.110043^2}{2^2+3.1^2} = \frac{124775^2+3.41594^2}{1}$$
$$= 47161^2+3.78602^2 = 124775^2+3.41594^2$$
$$= A^2+3B^2 = A'^2+3B'^2;$$

whence

$$\frac{\xi}{\eta} = \frac{A\sim A'}{B-B'} = \frac{77614}{37008} = \frac{151}{72}, \quad \frac{\xi'}{\eta'} = \frac{A\sim A'}{B-B'} = \frac{77614}{120196} = \frac{257}{398},$$

and $$X = 151^2+3.72^2 = 38353 = 7.5479,$$
$$Y = 257^2+3.398^2 = 541281 = 7.77323.$$

Finally $\quad N = k\lambda\lambda'.K = k\lambda\lambda'.XY = 7(7.5479)(7.77323).$

16962. (Krishna Prasad De, M.A.)—Show that there are three possible positions of the centre of reciprocation, such that the reciprocal polars of two given conics may be concentric.

Solution by W. F. Beard, M.A.

The only three points which have the same polar for both conics are the angular points of the triangle, which is self-polar to both conics. If we reciprocate with regard to any one of these points, the reciprocals of the two conics have the same centre.

16866. (C. M. Ross, B.A.)—If

$$p = x(y^3-z^3), \quad q = y(z^3-x^3), \quad r = z(x^3-y^3);$$

prove that $\quad xyz\,\Sigma p^3 = pqr\,\Sigma x^3.$

Solutions (I) *by* R. F. Davis, M.A.; (II) *by* Professor Nanson *and others*; (III) *by* Edith J. D. Morrison, M.A.

(I) If $\alpha+\beta+\gamma = 0$, then $\alpha^2-\beta\gamma = \beta^2-\gamma\alpha = \gamma^2-\alpha\beta$. In this instance

$$p^2/x^2 - qr/yz = \ldots = \ldots = t \text{ (say)}, \quad \text{and} \quad p^2/qr - x^2/yz = tx^2/qr.$$

Therefore $\quad \Sigma p^2/qr - \Sigma x^2/yz = \{t/pqr\}\,\Sigma px^2 = 0.$

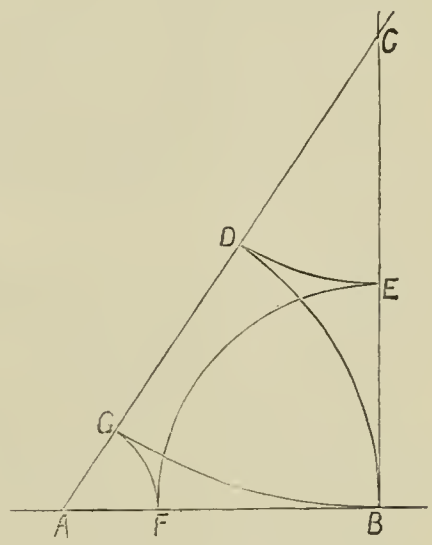
(II) In the identity $\Sigma a(b-c)^3 = \Sigma a\,\Pi(b-c)$, replace a, b, c by x^3, y^3, z^3, multiply by xyz, and results stated follows.

(III)
$$\Sigma x^3(y^3-z^3)^3 = \Sigma x^3y^3(x^6-y^6)$$
$$= \Sigma\{x^3y^3(x^3-y^3)(x^3+y^3+z^3) - x^6y^3z^3 + x^3y^6z^3\}$$
$$= \Sigma x^3y^3(x^3-y^3)(x^3+y^3+z^3) = \Pi(x^3-y^3)\,\Sigma x^3$$
$$= (pqr/xyz)\,\Sigma x^3.$$

QUESTIONS FOR SOLUTION.

16970. *Note.*—The Proposer desires to amend this Question, by multiplying both sides of the given equation or formula by r^2, resulting in $rsT_r \sim r^2N = \square$. This will enable us to test any number, whether s or T_r be divisible by r or not; and, where r is square, $sT_r \sim rN = \square$ would equally hold. The first 200 of 4-figured numbers have been tested, and three responses were discovered which would have been passed over by the original formula; but only one of these was of form $6n\pm1$, and this a prime, namely, 1163.

16986. (D. Biddle.)—ABC is a plane triangle right-angled in B. With centre A and radius AB, D is found in AC. With centre C and radius CD, E is found in BC. With centre B and radius BE, F is found in AB. With centre A and radius AF, G is found in AC. It can easily be proved that the circle described with centre C and radius CG passes through B, and that accordingly D and G are reciprocally placed. But regard AB and AF as representing prime factors, whose product N is known, and find the lengths of AC, BC for given values of AF, AB. This is more readily done and fractions are obviated by regarding AB as N, when AF becomes the square of the smaller factor; the ratio is unaltered. N.B.—Since AF is supposed to be given, we have also the circle of which FE is part, as well as that of which BD is part, and BC is the locus of the centre of a circle touching the two. C can therefore be found by geometry.



16987. (J. J. Barniville, B.A., I.C.S.)—(1) From the identities

$$x^4+1 \equiv (x^2+1)^2-2x^2 \quad \text{and} \quad x^4-x^2+1 \equiv (x^2+1)^2-3x^2,$$

deduce the factors of

$$x^8+14x^4+1, \quad x^8+34x^4+1, \quad x^8+98x^4+1, \quad x^{12}+110x^6+1, \quad \ldots.$$

(2) From the identity

$$x^{15}-1 \equiv (x^3-1)(x^4+x^3+x^2+x+1)(x^8-x^7+x^5-x^4+x^3-x+1),$$

deduce the factors of $x^{30}+1364x^{15}-1$ and of $x^{45}-7x^{30}+68x^{15}-1$. (3) Reduce $x^{10}+11x^5-1$ to the form $A^2B-\frac{5}{4}x^2B^3$. (4) Express $x^8+x^6-\frac{1}{4}x^2+1$, $x^{10}+2x^8+5x^6-1$, $x^{10}+16x^6+8x^4-1$, $4x^{10}+7x^8+x^2-4$, as differences of squares.

16988. (D. Edwardes, B.A.)—If

$$k_{n,s} = (2n-4s+1)\frac{n!}{s!\,n-s!}\,\frac{(2n-2s+3)(2n-2s+5)\ldots(2n-1)}{1.3.5\ldots(2s-1)},$$

$s = 2, 3, \ldots, n$, and $k_{n,1} = n(2n-3)$, prove that

$$(x+\tfrac{1}{2})(x+\tfrac{3}{2})\ldots\left(x+\frac{2n-1}{2}\right) + k_{n,1}x(x+\tfrac{1}{2})\ldots\left(x+\frac{2n-3}{2}\right)$$
$$+ k_{n,2}x(x+1)(x+\tfrac{1}{2})\ldots\left(x+\frac{2n-5}{2}\right)+\ldots$$
$$+ k_{n,n-1}x(x+1)\ldots(x+n-2)(x+\tfrac{1}{2}) + k_{n,n}x(x+1)\ldots(x+n-1)$$
$$= \tfrac{1}{2}.\tfrac{3}{2}.\tfrac{5}{2}\ldots\frac{2n-1}{2}.$$

16989. (Professor J. C. SWAMINARAYAN, M.A.)—Eliminate a, b, c between the equations

$$x^2 = (y-c)(z+b), \quad y^2 = (z-a)(x+c), \quad z^2 = (x-b)(y+a),$$

and

$$a+b+c = 0.$$

16990. (Professor E. B. ESCOTT.)—Solve the simultaneous equations

$$x^3+2yzw-xy^2-xz^2-xw^2 = a \text{.....}(1),$$
$$y^3+2zwx-yz^2-yw^2-yx^2 = b \text{.....}(2),$$
$$z^3+2wxy-zw^2-zx^2-zy^2 = c \text{.....}(3),$$
$$w^3+2xyz-wx^2-wy^2-wz^2 = d \text{.....}(4).$$

16991. (C. M. ROSS, B.A.)—A straight line passes through the point $(0, \frac{1}{3}a)$ and cuts the cubic $y^3 = ax^2$ in the points A, B, C. Find the locus of a point D when A, B, C, D are harmonic conjugates.

16992. (Professor NANSON.)—Trace the curve given by

$$x = (u-a)^2, \quad y = (v-b)^2,$$

where the parameters u, v are connected by the equation $uv = c^2$.

16993. (The late Professor COCHEZ.)—On donne deux axes Ox, Oy et une circonférence C. On prend sur les axes deux points A et B conjugués par rapport à la circonférence. Trouver l'enveloppe de AB.

16994. (Professor SANJÁNA, M.A.)—Two opposite sides, PP′, QQ′ of a quadrangle inscribed in a central conic, cross the axis at equal distances from the centre; prove that a similar property holds with regard to the sides PQ′, P′Q, and with regard to PQ, P′Q′.

16995. (S. NARAYANA AIYAR.)—A circle and a conic are so related that triangles inscribed in the conic are circumscribed to the circle. Then the locus of the circum-centre of all these triangles is a conic. But, if the circle and the conic are so related that triangles inscribed in the circle are circumscribed to the conic, then the locus of the orthocentre of all these triangles is a circle.

16996. (SARADAKANTA GANGULI, M.A.)—ABCD is a quadrilateral inscribed in a parabola, and a, b, c, d are the distances of the angular points from any straight line parallel to the axis of the parabola. If (BCD) represents the area of the triangle BCD, show that

$$a^2(\text{BCD}) + c^2(\text{ABD}) = b^2(\text{ACD}) + d^2(\text{ABC}).$$

16997. (W. F. BEARD, M.A.)—G, K are the centroid and symmedian point of a triangle ABC; an ellipse is described through A, B, C with its centre at G. Prove that the polar of K with regard to the ellipse is the polar of G with regard to the circum-circle of ABC.

16998. (Professor NEUBERG.)—On donne une droite d située dans un plan P et deux points A, B sur une perpendiculaire à P (qui ne rencontre pas m). C étant un point mobile sur m, trouver (1) la surface engendrée par la perpendiculaire élevée au milieu de la droite AC dans le plan ABC; (2) le lieu du centre du cercle circonscrit au triangle ABC.

16999. (H. J. RAYMOND.)—The vertex O of a regular tetrahedron ABCO is fixed on the line of intersection of two given planes, in which the edges OA, OB move. Find the locus of the vertex C.

17000. (KRISHNA PRASAD DE, M.A.)—Given the base of an isosceles triangle, and the rectangle contained by a side and the altitude, construct it.

17001. (Professor NANSON.)—Having given any four of the six rays of an involution pencil and the angle between the remaining two rays, construct those two rays.

17002. (Professor STEGGALL.)—In solving the equations

$$y = 3x - x^3, \quad x = 3y - y^3,$$

by the substitutions $x = \tan\theta$, $y = \tan\phi$, only seven of the nine pairs of roots appear, and one additional pair of roots, namely $x = \infty$, $y = \infty$, is introduced. Explain this apparent discrepancy.

17003. (W. GALLATLY, M.A.)—The following theorem has presented itself during the consideration of the orthogonal projection of a triangle. Let R be the centre of the circle (QQ′) belonging to the coaxal system whose radical axis is OO′, and whose limiting points are L, L′. Take any two points M, N on OO′. Then, if P be any point on the circle $\text{LM}^2 \cot \text{PNM} + \text{LN}^2 \cot \text{PMN} + \text{MN}^2 \cot \text{MPN} = 2.\text{MN}.\text{R}$.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

13051. (Professor MUKHOPÁDHYÂY.)—From an unknown number of balls, each equally likely to be white or black, three are drawn of which two are white and one black. If five more balls be drawn, the chances of drawing five white, four white, and one black, three white and two black, and so on, are as 7 : 10 : 10 : 8 : 5 : 2.

13061. (JAMES CULLEN, S.J.)—In Tait's *Quaternions* (2nd edition, p. 191), Sir W. R. Hamilton pointed out that, if $f\rho = S\rho\phi\rho = 1$ be the quaternion equation of a central quadric, then for a geodesic of constant element $\frac{df\,d\rho}{2Sd\rho} + \frac{S\,d\nu}{\nu} = 0$. Prove this (1), and show that (2) the integral is $T\nu\,(fUd\rho)^{\frac{1}{2}}$ = constant, and (3) that the sinister of the latter is the reciprocal of Joachimstal's product PD.

13079. (Professor MORLEY.)—A quadric which is bitangent and concentric with three given confocal quadrics has a fixed director-sphere.

13165. (Professor CROFTON, F.R.S.)—A four-sided frame is found to be in equilibrium with four given forces acting at the joints; though, if the joints were free, the equilibrium could not subsist. Determine the greatest bending moment which can be in operation on any specified joint, that is, that which would exist there, if the three remaining joints were free.

13189. (C. E. BICKMORE.)—Find two general solutions in integers of the equation $x^2 = 616318177y - 1$.

13223. (Professor SWAMINATHA AIYAR.)—A hollow cylinder of radius a has one generator fixed in a horizontal position about which it can rotate freely. A second hollow cylinder of radius b ($< a$) is placed inside the first, and the system performs small oscilaltions, the surfaces of contact being perfectly rough. Show that the times of the small coexistent oscillations of the axes are the same as the times of oscillation of pendulums of lengths $2a$ and $2(a-b)$.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, November 10th, 1910 (Annual General Meeting).—Sir W. D. Niven, President, and subsequently Dr. H. F. Baker, newly elected President, in the chair.

Miss M. Long and Prof. E. B. Wilson were elected members.

The Council and officers for the ensuing Session were elected, as follows:—President, Dr. H. F. Baker; Vice-Presidents, Mr. J. E. Campbell, Major P. A. MacMahon, Sir W. D. Niven; Treasurer, Sir J. Larmor; Secretaries, Mr. J. H. Grace, Prof. A. E. H. Love; other members of the Council, Mr. G. T. Bennett, Dr. T. J. I'A. Bromwich, Prof. W. Burnside, Mr. E. Cunningham, Mr. A. L. Dixon, Dr. L. N. G. Filon, Prof. E. W. Hobson, Prof. H. M. Macdonald, Dr. A. E. Western.

Sir W. D. Niven delivered a Presidential Address on "The Relations of Mathematics and Experimental Science."

The following papers were communicated:—

"The Double Six of Lines": Mr. G. T. Bennett.

"The Existence of a Differential Coefficient": Dr. W. H. Young and Mrs. Young.

(1) "Note on the Property of being a Differential Coefficient," (2) "Conditions that a Trigonometrical Series may have the Fourier Form": Dr. W. H. Young.

"A Class of Integral Functions which includes Riemann's Zeta-Function": Mr. F. Tavani.

"The Geometrical Representation of Non-Real Points in Space of Two and Three Dimensions": Mr. T. W. Chaundy.

"The Extension of Tauber's Theorem:" Mr. J. E. Littlewood.

"The Stability of Rotating Shafts": Mr. F. B. Pidduck.

"A Class of Orthogonal Surfaces": Mr. J. E. Campbell.

"Non-Integral Orders of Summability of Series and Integrals": Mr. S. Chapman.

"Lineo-Linear Transformations, specially in Two Variables": Dr. A. R. Forsyth.

"Notes on Terminating Hypergeometric Series": Dr. W. F. Sheppard.

"The Transformation of a Particular Type of Electromagnetic Field and its Physical Interpretation": Mr. H. Bateman.

"Über die Dimensionentypen des Herrn Fréchet im Gebiete der linearen Mengen": Dr. P. Mahlo.

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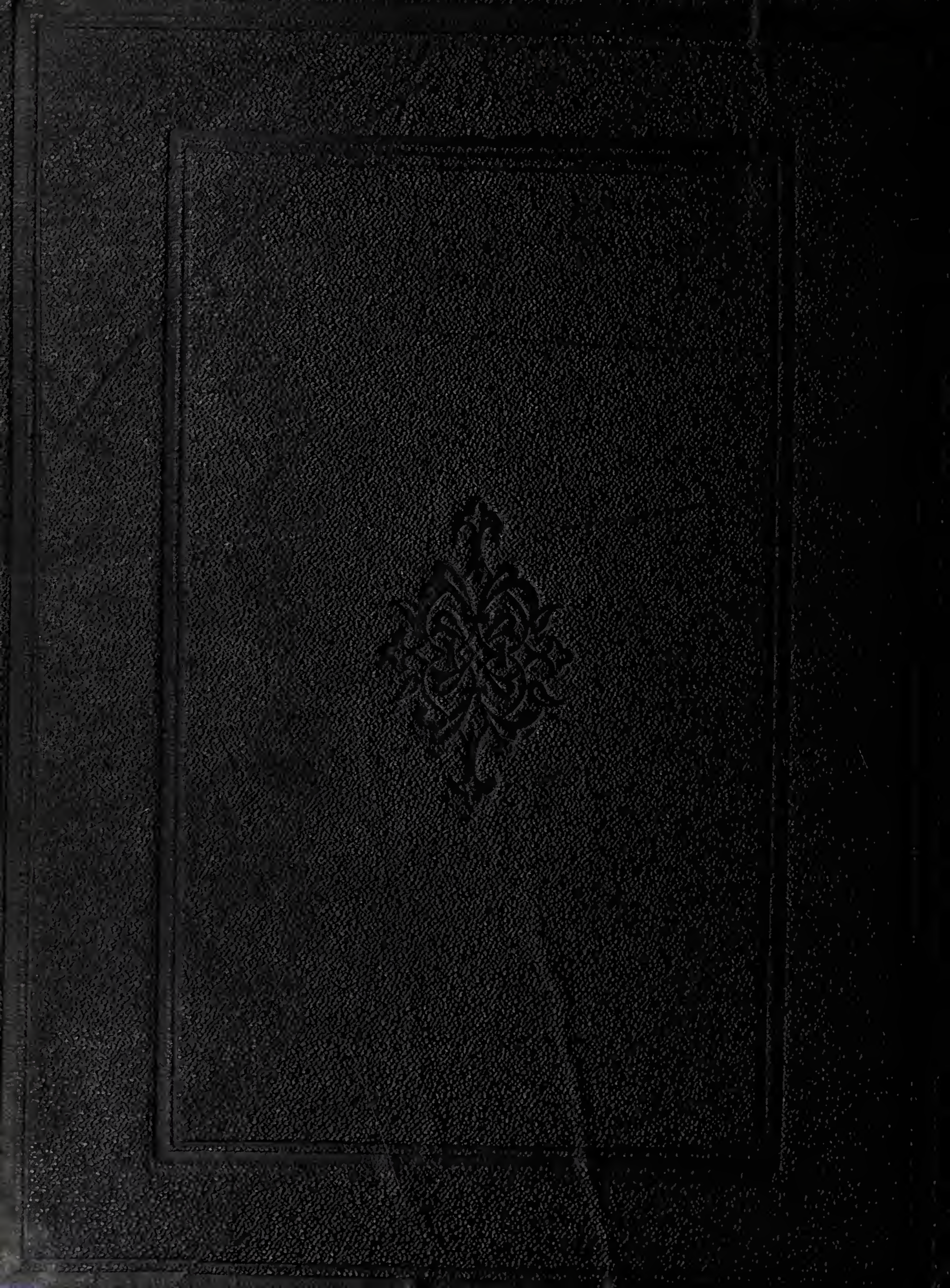
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